CCD-TR610E/TR710E/TR760E/TR810E/TR910E
RMT-708/715/716

AEP Model
UK Model
CCD-TR610E/TR760E/TR810E
E Model
CCD-TR610E/TR710E/TR910E
Australian Model
CCD-TR710E/TR910E
Tourist Model
Hong Kong Model
CCD-TR910E

Handycam
Video8
videoHi8
B MECHANISM

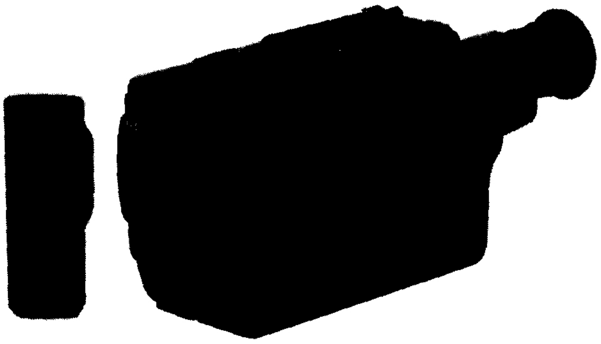


Photo : CCD-TR610E
: RMT-708

SPECIFICATIONS

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette (Hi8 (CCD-TR760E/TR810E/TR910E only) or standard 8 mm)
Recording/Playback time
SP mode: 1 hour and 30 minutes (E5/P5-90)
LP mode: 3 hours (E5/P5-90)
Fastforward/rewind time
Approx. 4 min (E5/PS-90)
Image device
CCD (Charge Coupled Device)
Viewfinder
Electronic viewfinder (Monochrome)
Lens
Combined power zoom lens
Filter diameter 37 mm (1 7/16 in.)
15x (optical)
30x (Digital)
(CCD-TR610E: AEP/UK/TR760E/TR810E)
60x (Digital)
(CCD-TR610E: E/TR710E/TR910E)
Focal distance
4.1 – 61.5 mm (3/16 – 2 3/8 in.)
39 – 585 mm (1 9/16 – 22 1/16 in.) when converted to a 35 mm still camera
Illumination range
2 lux to 100,000 lux
Recommended illumination
More than 100 lux

Input and output connectors

S video output (CCD-TR760E/TR810E/TR910E only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input/output
Phono jacks (2: stereo L and R)
327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5 V
Headphone jack
Stereo minijack
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kilohms (ø 3.5 mm)
Stereo type

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
CCD-TR610E/TR810E:
4.2 W during camera recording
CCD-TR710E/TR760E/TR910E:
4.1 W during camera recording
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
CCD-TR610E/TR760E/TR810E:
104 x 109 x 202 mm
(4 1/4 x 4 3/8 x 8 in.)(w/h/d)
CCD-TR710E/TR910E
104 x 109 x 178 mm
(4 1/4 x 4 3/8 x 7 in.)(w/h/d)
Mass (Approx.)
800 g (1 lb 12 oz) excluding the battery pack, lithium battery, cassette and shoulder strap
940 g (2 lb 1 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-90 and shoulder strap
Microphone
Stereo type

Supplied accessories
See page 3.

AC power adaptor

Power requirements
110 – 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730 lithium ion type
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
81 x 45 x 163 mm (3 1/4 x 1 13/16 x 6 1/2 in.) (w/h/d) including projecting parts and controls
Mass (Approx.)
AC-V315: 480 g (1 lb 1 oz)
AC-V316: 560 g (1 lb 3 oz)

Design and specifications are subject to change without notice.

8 VIDEO CAMERA RECODER
CCD-TR610E/TR710E

Hi 8 VIDEO CAMERA RECODER
CCD-TR760E/TR810E/TR910E

SONY®

Table for difference of functions

Model		CCD-TR610E		CCD-TR710E	CCD-TR760E	CCD-TR810E	CCD-TR910E	
Destination		AEP, UK	E	E, AUS	AEP, UK	AEP, UK	E, HK, AUS, JE	
Classification		TYPE A	TYPE B	TYPE C	TYPE D	TYPE E	TYPE F	
Remote Commander		RMT-708			RMT-716		RMT-715	
Hi8					○	○	○	Note 1
Standard 8		○	○	○				
Lens	Optical	15 ×	15 ×	15 ×	15 ×	15 ×	15 ×	
	Digital	30 ×	60 ×	60 ×	30 ×	30 ×	60 ×	
STEADY SHOT		○	○	○		○	○	Note 2
Viewfinder		B/W EVF		Color EVF	B/W EVF	B/W EVF	Color EVF	Note 3
TBC & DNR					○	○	○	Note 4
Time Code					○	○	○	Note 5
VTR REC (Line in jack)			○	○			○	
Easy Connect					○	○		Note 6
Accessory Shoe	Intelligent				○	○	○	
	Standard	○	○	○				

Note 1: ○ (with S VIDEO terminal)
2: ○ (with SE-51 board)
3: B/W EVF (Monochrome, with VF-99 board)
Color EVF (with VF-95, VF-96, LB-45 and FP-394 board)
4: ○ (with IC115 of VC-177 board)
5: ○ (with IC128 of HI-39 board)
6: ○ (with EZ-21 board)

- Abbreviation

AUS : Australian model
HK : Hong Kong model
JE : Tourist model

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

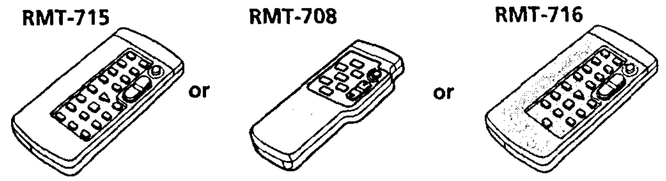
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Supplied accessories

1



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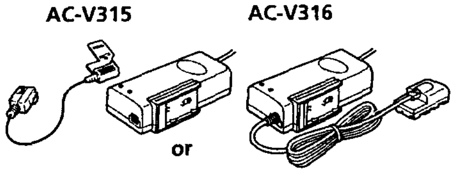

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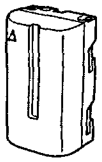

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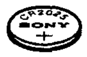

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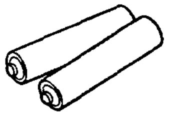

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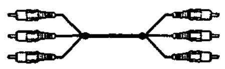

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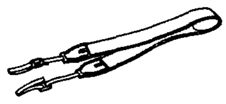

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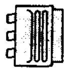

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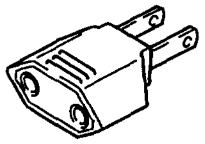

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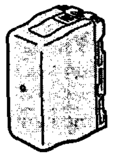

1 **Wireless Remote Commander** (1)
RMT-708 : CCD-TR610E/TR710E
RMT-715 : CCD-TR910E
RMT-716 : CCD-TR760E/TR810E

2 **AC power adaptor** (1)
AC-V315 : CCD-TR760E/TR810E
AC-V316 : CCD-TR610E/TR710E/TR910E

3 **NP-F530 Battery pack** (1)

4 **CR2025 Lithium Battery** (1)
The lithium battery is already installed in your camcorder.

5 **R6 (size AA) battery for Remote Commander** (2)

6 **A/V connecting cable** (1)

7 **Shoulder strap** (1)

8 **21 pin adaptor** (1)
CCD-TR610E: AEP, UK
CCD-TR760E: AEP, UK
CCD-TR810E: AEP, UK

9 **2 pin conversion adaptor** (1)
CCD-TR610E: E/TR710E: E/TR910E: E, HK, JE

10 **Battery case** (1)
CCD-TR610E: AEP, UK
CCD-TR760E: AEP, UK
CCD-TR810E: AEP, UK

Note.
Australian model is abbreviated as AUS.
Hong Kong model is abbreviated as HK.
Tourist model is abbreviated as JE.

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Using this manual

The instructions in this manual are for the three models listed below. Before you start reading this manual and operating the unit, check your model number by looking at the bottom of your camcorder. The CCD-TR810E is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TR810E only." As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Type of differences

Model number	CCD-TR610E	CCD-TR760E	CCD-TR810E
System Hi8/8	8 (quasi playback)	Hi8	Hi8
Easy connection	—	•	•
Battery charging (when it is installed in the camcorder)	—	•	•
Steady Shot	•	—	•
Index	—	•	•
RC time code	—	•	•
Data code	—	•	•
Intelligent accessory shoe	—	•	•
Auto Date	•	—	—
Remote Commander	RMT-708	RMT-716	RMT-716

Note on TV colour systems

TV colour systems differ from country to country. To view your recordings on a TV, you need a PAL system-based TV.

Utilización de este manual

Las instrucciones de este manual abarcan los tres modelos de la tabla siguiente. Antes de leer el manual y utilizar la videocámara, vea el nombre de su modelo en la base de la misma. Las ilustraciones de este manual son de la CCD-TR810E pero cuando sean de otra, su nombre de modelo se indicará en la ilustración. Cualquier diferencia en cuanto a la operación, se indicará claramente en el texto, por ejemplo, "CCD-TR810E solamente".
Las teclas y ajustes de la videocámara aparecen en mayúsculas en todo el manual.
Ej. Ponga el selector POWER en CAMERA.
Como se indica mediante la marca ♪ en las ilustraciones, podrá oír los pitidos para confirmar su operación.

Diferencias en tipo

Nombre del modelo	CCD-TR610E	CCD-TR760E	CCD-TR810E
Sistema Hi8/8	8 (cuasi reproducción)	Hi8	Hi8
Conexión fácil	—	•	•
Carga de la batería (colocada en la videocámara)	—	•	•
Videofilmación estable	•	—	•
Indice	—	•	•
Código de tiempo RC	—	•	•
Código de datos	—	•	•
Zapata de alimentación de accesorios	—	•	•
Fecha automática	•	—	—
Telemando	RMT-708	RMT-716	RMT-716

Nota sobre los sistemas de televisión en color

Los sistemas de televisión en color difieren de acuerdo con los países. Para ver su videofilmación en un televisor, éste deberá estar basado en el sistema PAL.

Precaution on copyright

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Precautions on camcorder care

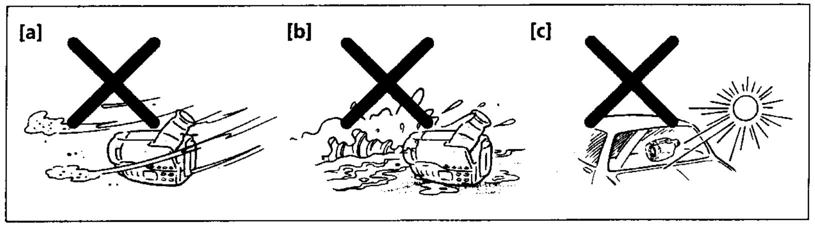
- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].**
- **Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].**
- **Never leave the camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight [c].**

Precaución sobre los derechos de autor

Los programas de televisión, películas, videocintas y demás materiales pueden tener reservado el derecho de reproducción.
La grabación no autorizada de tales materiales puede ir en contra de lo dispuesto por las leyes de derechos de autor.

Precauciones sobre los cuidados de la videocámara

- **No permita que entre arena en la videocámara. Cuando utilice la videocámara en una playa arenosa o en un lugar polvoriento, protéjala de la arena o del polvo. La arena o el polvo pueden causar mal funcionamientos que a veces no podrán repararse. [a]**
- **No deje que la videocámara se moje. Proteja la videocámara de la lluvia o del agua de mar. Pueden causar mal funcionamientos que a veces no podrán repararse. [b]**
- **No deje la videocámara a temperaturas superiores a 60°C, como en el interior de un automóvil aparcado al sol o bajo la luz solar directa. [c]**



Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

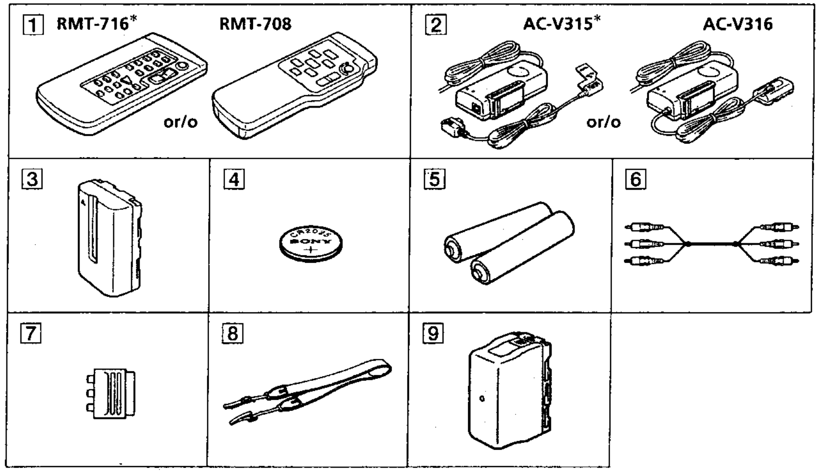
El contenido de la grabación no podrá remunerarse si la grabación o reproducción no se realiza debido a un mal funcionamiento de la videocámara, el videocassette, etc.

Checking supplied accessories

Check that the following accessories are supplied with your camcorder.

Comprobación de los accesorios suministrados

Compruebe si los siguientes accesorios están incluidos con su videocámara.



[1] **Wireless Remote Commander** (1) (p.101)
 * for Hi8 model

[2] **AC power adaptor** (1) (p.8, 27)
 * for Hi8 model

[3] **NP-F530 Battery pack** (1) (p.8, 27)

[4] **CR2025 Lithium Battery** (1) (p.70)
The lithium battery is already installed in your camcorder.

[5] **R6 (size AA) battery for Remote Commander** (2) (p.102)

[6] **A/V connecting cable** (1) (p.21, 22)

[7] **21 pin adaptor** (1) (p.22)

[8] **Shoulder strap** (1) (p.103)

[9] **Battery case** (1) (p.29)

[1] **Telemando inalámbrico** (1) (pág.101)
 * Para el modelo Hi8

[2] **Adaptador de alimentación de CA** (1) (pág.8, 27)
 * Para el modelo Hi8

[3] **Batería NP-F530** (1) (pág.8, 27)

[4] **Pila de litio CR2025** (1) (pág.70)
La pila de litio ya está insertada en su videocámara.

[5] **Pilas R6 (tamaño AA) para el telemando** (2) (pág.102)

[6] **Cable conector de audio/vídeo** (1) (pág.21, 22)

[7] **Adaptador de 21 terminales** (1) (pág.22)

[8] **Bandolera** (1) (pág.103)

[9] **Caja de pilas** (1) (pág.29)

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.

This camcorder operates with the "InfoLITHIUM" battery labeled ⓘ InfoLITHIUM such as NP-F530/F730. If you use any other battery to operate your camcorder, the camcorder may not operate or the battery life may be shortened.

"InfoLITHIUM" is a trade mark of Sony Corporation.

Charging the battery pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the mains lead to mains.

(2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour. Unplug the unit from the mains, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.

Carga y fijación de la batería

Antes de utilizar la videocámara, primero tendrá que cargar y colocar la batería. Para cargar la batería, utilice el adaptador de alimentación de CA suministrado.

Esta videocámara funciona con baterías "InfoLITHIUM" con la marca ⓘ InfoLITHIUM como la NP-F530/F730. Si utiliza cualquier otro tipo de batería para alimentar la videocámara, es posible que la videocámara no funcione o la vida útil de la batería se acorte.

"InfoLITHIUM" es marca registrada de Sony Corporation.

Carga de la batería

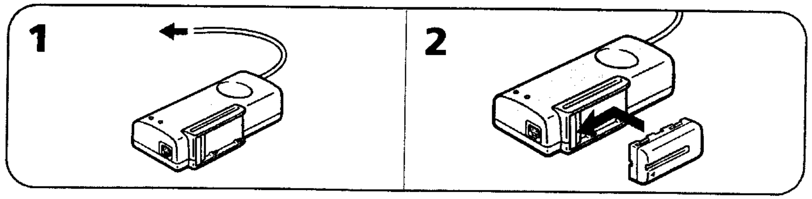
Cargue la batería en un lugar nivelado y exento de vibraciones.

(1) Conecte el cable de alimentación a una toma de la red.

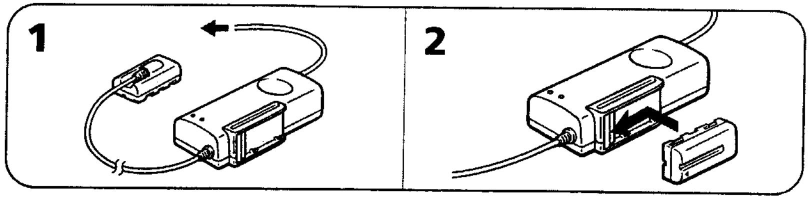
(2) Alinee la superficie de la batería indicada con la marca ▶ con el borde del obturador de terminal del adaptador de alimenfación de CA. Después encaje y deslice la batería en el sentido de la flecha. Se encenderá la lámpara CHARGE (anaranjada) y la carga comenzará.

Cuando la lámpara CHARGE se apague, terminará la **carga normal**. Para la **carga completa**, que le permite utilizar la batería más de lo usual, deje la batería en su lugar durante aproximadamente una hora más. Desenchufe la unidad de la toma de la red, quite la batería e instálela en la videocámara. Usted también podrá utilizar la batería antes de que la misma se haya cargado por completo.

AC-V315



AC-V316



Charging time

Battery pack	Charging time* (min.)
NP-F530 (supplied)	170 (110)
NP-F730	250 (190)

* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor (full charge). (Lower temperatures require a longer charging time.)

The time required for a normal charge is indicated in parentheses.

Battery life

CCD-TR610E/TR810E

Battery pack	Continuous recording time* (min.)	Typical recording time** (min.)
NP-F530 (supplied)	115 (105)	70 (65)
NP-F730	265 (240)	160 (145)

CCD-TR760E

Battery pack	Continuous recording time* (min.)	Typical recording time** (min.)
NP-F530 (supplied)	120 (105)	70 (65)
NP-F730	270 (240)	160 (145)

Numbers before the parentheses indicate the time when you use a fully charged battery. Numbers in the parentheses indicate the time when you use a normal charged battery.

* Approximate continuous recording time indoors.

** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Tiempo de carga

Batería	Tiempo de carga* (min.)
NP-F530 (suministrada)	170 (110)
NP-F730	250 (190)

* Minutos aproximados para cargar una batería agotada utilizando el adaptador de alimentación de CA suministrado (carga completa). (A bajas temperaturas, el tiempo de carga será más largo.)

El tiempo requerido para la carga normal se indica entre paréntesis.

Duración de la batería

CCD-TR610E/TR810E

Batería	Tiempo de videofilmación continua* (min.)	Tiempo de videofilmación típica** (min.)
NP-F530 (suministrada)	115 (105)	70 (65)
NP-F730	265 (240)	160 (145)

CCD-TR760E

Batería	Tiempo de videofilmación continua* (min.)	Tiempo de videofilmación típica** (min.)
NP-F530 (suministrada)	120 (105)	70 (65)
NP-F730	270 (240)	160 (145)

Los números que están fuera del paréntesis indican el tiempo empleando una baería completamente cargada.

Los números entre paréntesis indica el tiempo cuando utilice una batería cargada normalmente.

* Tiempo aproximado de videofilmación continua en interiores.

** Minutos aproximados cuando se grabe repitiendo el inicio/parada de la grabación, el zoom y la conexión/desconexión de la alimentación. Es posible que la duración de la batería actual sea más corta.

Charging and installing the battery pack

Carga y fijación de la batería

Note on remaining battery time indication during recording

When you use the InfoLITHIUM battery pack, remaining battery time is displayed in the viewfinder. However, the indication may not be displayed properly, depending on using conditions and circumstances.

To remove the battery pack

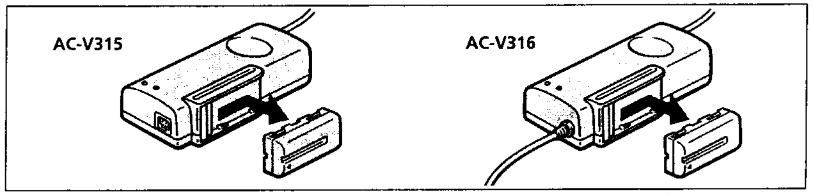
Slide the battery pack in the direction of the arrow.

Nota sobre la indicación de tiempo restante de la batería durante la grabación

Cuando utilice una batería InfoLITHIUM, en el visor se visualizará el tiempo restante de la batería. Pero, es posible que la indicación no se visualice adecuadamente según la forma que se utilice y las circunstancias.

Para quitar la batería

Deslícela en el sentido de la flecha.



Notes on charging the battery pack

- The CHARGE lamp will remain lit for a while even if the battery pack is removed and the mains lead is unplugged after charging the battery pack. This is normal.
- If the CHARGE lamp does not light, disconnect the mains lead. After about one minute, reconnect the mains lead again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Notas sobre la carga de la batería

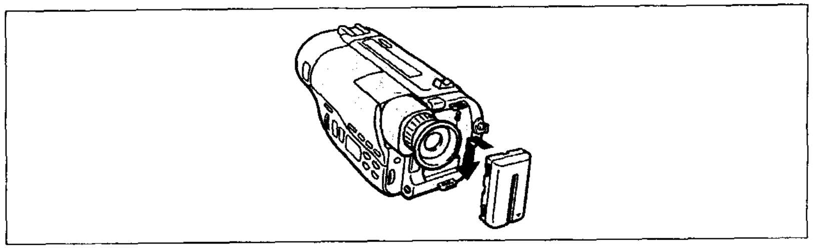
- Es normal que la lámpara CHARGE permanezca encendida durante un momento después de que haya quitado la batería y desconectado el cable de alimentación cuando finalice la carga.
- Si la lámpara CHARGE no se enciende, desconecte el cable de alimentación. Después de aproximadamente un minuto, vuelva a conectar el cable.
- No podrá operar la videocámara empleando el adaptador de alimentación de CA mientras esté cargando la batería.
- Cuando se instale una batería completamente cargada, la lámpara CHARGE se encenderá y luego se apagará.

Installing the battery pack

Align the prongs of the battery pack with the receptacles of the camcorder and slide the battery pack down until it catches on the battery release lever and clicks.

Fijación de la batería

Alinee las uñas de la batería con los receptáculos de la videocámara y deslice la batería hacia abajo hasta que se quede encajada en la palanca de liberación de la batería y chasquee.

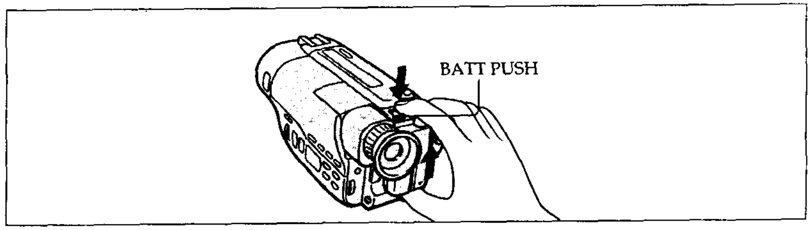


To remove the battery pack

While pressing the BATT (battery) PUSH button, slide the battery pack in the direction of the arrow.

Para quitar la batería

Manteniendo presionada la tecla BATT PUSH (liberación de la batería), deslice la batería en el sentido de la flecha.



Inserting a cassette

Make sure that the power source is installed. When you want to record in the Hi8 system, use Hi8 video cassette **Hi8** (for CCD-TR760E/TR810E only).

(1) While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.

(2) Insert a cassette with the window facing out.

(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.

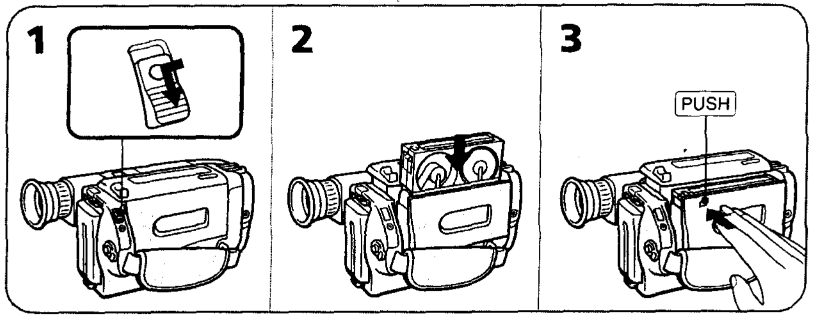
Inserción de un videocassette

Asegúrese de que haya una fuente de alimentación conectada a la videocámara. Para grabar en el sistema Hi8, utilice un videocassette Hi8 **Hi8** (para la CCD-TR760E/TR810E solamente).

(1) Manteniendo presionado el pequeño botón azul en el interruptor EJECT, deslícelo en el sentido de la flecha. El compartimiento del videocassette se elevará y abrirá automáticamente.

(2) Inserte un videocassette con la ventanilla hacia afuera.

(3) Cierre el compartimiento del videocassette presionando la marca "PUSH" en el mismo. El compartimiento se bajará automáticamente.



To eject the cassette

While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow.

Para expulsar el videocassette

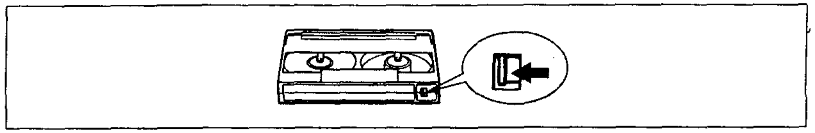
Manteniendo presionado el pequeño botón azul en el interruptor EJECT, deslícelo en el sentido de la flecha.

To prevent accidental erasure

Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the ▭ and ⏏ indicators flash in the viewfinder, and you cannot record. To re-record on this tape, slide the tab back out covering the red mark.

Para prevenir el borrado accidental

Deslice la lengüeta del videocassette de forma que la marca roja quede al descubierto. Si inserta un videocassette con la marca roja al descubierto y cierra el compartimiento del videocassette, sonarán los pitidos durante un momento. Si intenta grabar con la marca roja al descubierto, en el visor parpadearán los indicadores ▭ y ⏏, y no podrá grabar. Para volver a grabar en esta cinta, deslice la lengüeta de forma que se cubra la marca roja.



Basic operations

Camera recording

Operaciones básicas

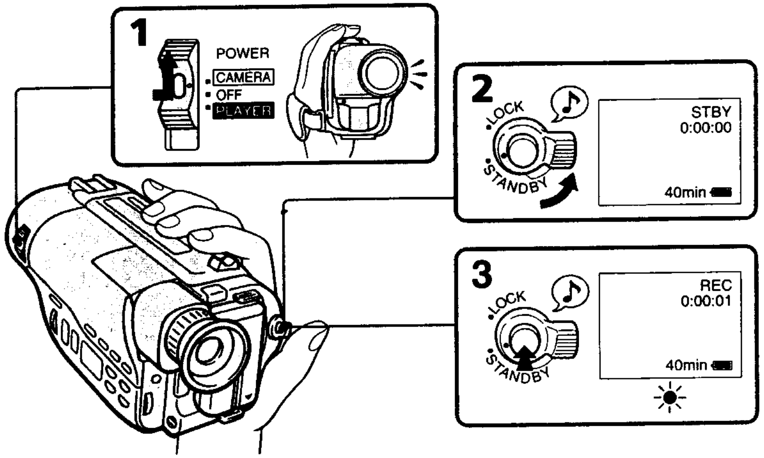
Videofilmación

Make sure that the power source is installed, a cassette is inserted and that the START/STOP MODE switch is set to ⊻. Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.
When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording. (p.72)
The date is automatically recorded for 10 seconds after you start recording (**AUTO DATE feature** —CCD-TR610E only).

(1) While pressing the small green button on the POWER switch, set it to CAMERA.
(2) Turn STANDBY up.
(3) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamps located on the front light up.
The AUTO DATE indicator appears (CCD-TR610E only).

Asegúrese de que la fuente de alimentación esté instalada, haya un videocassette insertado y el selector START/STOP MODE esté en ⊻. Antes de realizar videofilmaciones irrepetibles, quizá desee realizar una filmación de prueba para comprobar si la videocámara funciona correctamente.
Cuando vaya a utilizar la videocámara por primera vez, conecte la alimentación y reponga la fecha y la hora antes de comenzar a filmar (pág.72).
La fecha se grabará automáticamente durante 10 segundos a partir del inicio de la videofilmación (**función AUTO DATE** —CCD-TR610E solamente).

(1) Manteniendo presionado el pequeño botón verde en el selector POWER, póngalo en CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione START/STOP. La videocámara comenzará a grabar. En el visor aparecerá el indicador "REC" y se encenderá la lámpara roja. Las lámparas de videofilmación/estado de la batería ubicadas en la parte frontal de la videocámara se encenderán también.
El indicador AUTO DATE aparecerá (CCD-TR610E solamente).



To stop recording momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder (**Standby mode**).

To finish recording [b]

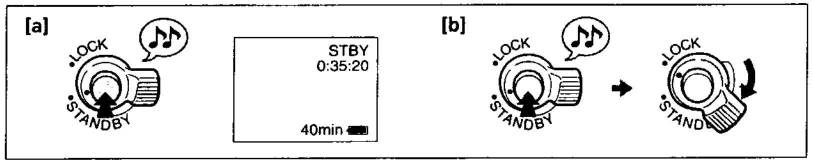
Press START/STOP again. Turn STANDBY down and set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.

Para detener momentáneamente la grabación [a]

Presione otra vez START/STOP. En el visor aparecerá el indicador "STBY" (**Modo de espera**).

Para finalizar la grabación [b]

Vuelva a presionar START/STOP. Gire STANDBY hacia abajo y ponga el selector POWER en OFF. Después extraiga el videocassette y quite la batería.

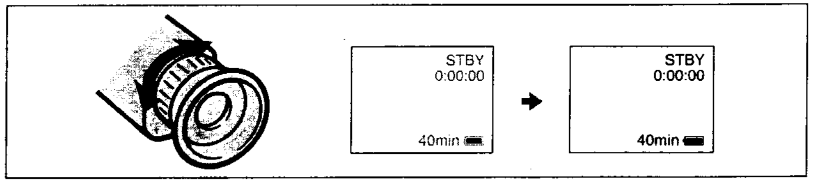


To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.

Para enfocar la lente del visor

Si no puede ver claramente los indicadores en el visor, o cuando emplee la videocámara después de que otra persona la haya utilizado, enfoque la lente del visor. Mueva el anillo de ajuste de la lente del visor para que los indicadores del visor puedan verse claramente.



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

Nota sobre el modo de espera

Si deja la videocámara en el modo de espera durante 5 minutos con el videocassette insertado, la videocámara se apagará automáticamente. Esto evitará que la batería y el videocassette se desgasten. Para restablecer el modo de espera, gire una vez STANDBY hacia abajo y después otra vez hacia arriba. Para comenzar a grabar, presione START/STOP.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. However, the playback quality in LP mode will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

Notes on the tape counter

- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on the beep sound

As indicated with ♪ in the illustration, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.
Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Notas sobre el modo de grabación

- Esta videocámara graba y reproduce en los modos SP (duración estándar) y LP (duración larga). La calidad de las imágenes reproducidas en el modo LP no será tan buena como en el modo SP.
- Cuando reproduzca una cinta grabada en esta videocámara con el modo LP en otros tipos de videocámaras o videograbadoras de 8mm, es posible que la calidad de las imágenes no sea tan buena como en esta videocámara.

Nota sobre la grabación

Cuando grabe desde el comienzo de la cinta, haga que ésta avance unos 15 segundos antes de comenzar la videofilmación actual. Esto evitará que se pierdan las escenas iniciales cuando se reproduzca la cinta.

Notas sobre el contador de la cinta

- El contador de la cinta indicará el tiempo de grabación o reproducción. Empléelo como una guía. Es posible que exista una diferencia de varios segundos del tiempo real. Para ajustar el contador a cero, presione COUNTER RESET.
- Si la cinta está grabada con los modos SP y LP mezclados, el contador de la cinta indicará un tiempo de grabación incorrecto. Cuando desee editar la cinta utilizando el contador de la cinta, grabe con el mismo modo (SP o LP).

Nota sobre el pitido

Como se indica con la marca ♪ en las ilustraciones de este manual, cuando conecte la alimentación o cuando comience la videofilmación, sonará un pitido, y cuando pare la videofilmación sonarán dos pitidos para confirmar la operación. También sonarán varios pitidos como advertencia de una condición anormal de la videocámara.
Tenga en cuenta que los pitidos no se grabarán en la cinta. Si no desea oír los pitidos, seleccione "OFF" en el sistema del menú.

Note on the AUTO DATE feature —CCD-TR610E only

The clock is set at the factory to London time for United Kingdom and to Paris time for the other European countries. You can reset the clock in the menu system. You can change the AUTO DATE settings by selecting ON or OFF in the menu system. The AUTO DATE feature shows the date automatically once a day.
However, the date may automatically appear more than once a day when:
- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.
- you set AUTO DATE to OFF once and set it to ON again in the menu system.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.
For more professional-looking recordings, use the zoom function sparingly.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

Nota sobre la función AUTO DATE —CCD-TR610E solamente

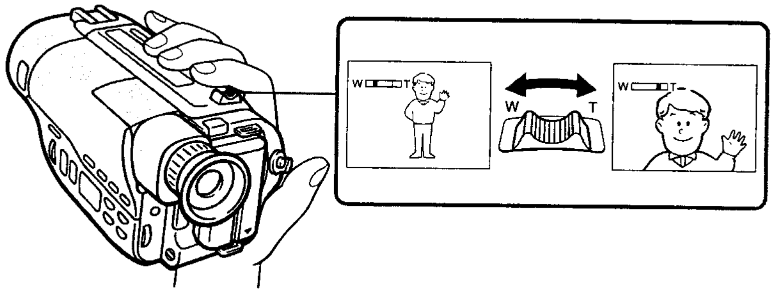
El reloj está ajustado en fábrica a la hora de Londres para los modelos destinados al Reino Unido y a la de París para otros modelos europeos. El reloj podrá reajustarse mediante el sistema del menú. Cambie el ajuste de AUTO DATE seleccionando ON u OFF en el sistema del menú. La función AUTO DATE indicará automáticamente la fecha una vez al día.
Sin embargo, la fecha aparecerá automáticamente más de una vez al día cuando:
- reajuste la fecha y la hora.
- extraiga y vuelva a insertar el videocassette.
- pare la grabación antes de 10 segundos.
- ponga una vez AUTO DATE en OFF y después vuelva a ponerlo en ON en el sistema del menú.

Cuando se mueva del interior al exterior (o viceversa)

Gire STANDBY hacia arriba y apunte con la videocámara hacia un objeto blanco durante unos 15 segundos de forma que el equilibrio del blanco se ajuste apropiadamente.

Empleo del zoom

El zoom es una técnica de videofilmación que le permite cambiar el tamaño del motivo en la escena.
Para que sus grabaciones tengan una apariencia más profesional, utilice el zoom en forma limitada.
Lado "T": para telefoto (el motivo se ve cercano)
Lado "W": para gran angular (el motivo se ve lejano)



Zooming speed (Variable speed zooming)

Move the power zoom lever a little for a relatively slow zoom. To speed up the zooming move the lever further.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80cm (about 2 $^{5}/_{8}$ feet) away from the lens surface in the telephoto position, or about 1cm (about $^{1}/_{2}$ inch) away in the wide-angle position.

Notes on digital zoom

- More than 15x zoom is performed digitally (x30), and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** in the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.

Velocidad del zoom (zoom con velocidad variable)

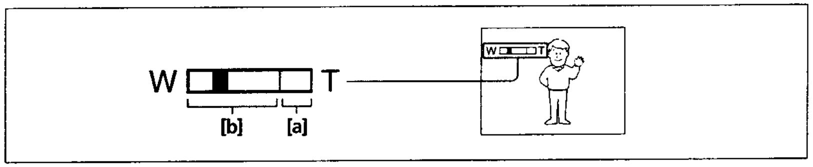
Mueva un poco la palanca del zoom motorizado para efectuar el zoom a una velocidad relativamente lenta.
Para hacerlo a una velocidad más rápida, mueva la palanca más.

Cuando videofilme un motivo empleando el acercamiento con el zoom

Si no puede enfocar nítidamente cuando videofilme con el zoom en el extremo de telefoto, mueva la palanca del zoom motorizado hacia el lado "W" hasta enfocar nítidamente. En la posición de telefoto, podrá videofilmar un motivo que esté por lo menos a 80 cm de la superficie del objetivo, y a 1 cm aproximadamente en la posición de gran angular.

Notas sobre el zoom digital

- El zoom de más de 15x se realizará digitalmente (x30), y la calidad de la imagen se deteriorará al avanzar hacia el lado "T". Si no desea utilizar el zoom digital, ajuste la función D ZOOM a OFF en el sistema del menú.
- El lado derecho **[a]** en el indicador del zoom motorizado indica la zona del zoom digital y el lado izquierdo **[b]** indica la zona del zoom óptico. Cuando ajuste la función D ZOOM a OFF, la zona **[a]** desaparecerá.

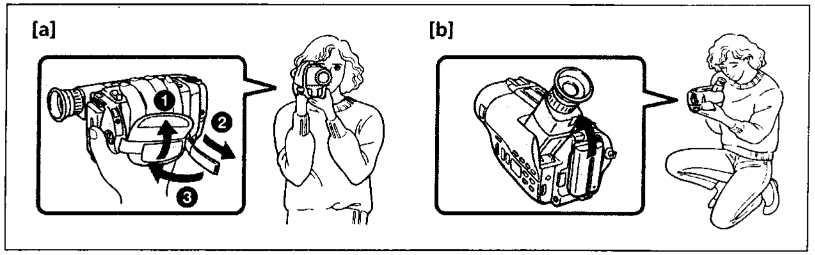


Hints for better shooting

Consejos para videofilmar mejor

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:

Para videofilmar con la videocámara en las manos, podrá obtener mejores imágenes sujetándola como se indica a continuación:



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb **[a]**.
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Be sure not to touch the built-in microphone.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting angle. Lift the viewfinder up for recording from a low position **[b]**.

Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.
When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 6.5 mm ($^{9}/_{32}$ inch). Otherwise, the screw may damage the inner parts of the camcorder.

- Sujete la videocámara firmemente y asegúrela con la correa de la empuñadura de modo que pueda manipular fácilmente los controles con el pulgar. **[a]**
- Coloque su codo derecho firmemente contra su costado.
- Coloque su mano izquierda debajo de la videocámara para sostenerla. Cerciórese de no tocar el micrófono incorporado.
- Apoye el ocular del visor de la videocámara firmemente contra su ojo.
- Para determinar el plano horizontal, utilice el cuadro del visor como referencia.
- Para obtener un ángulo de videofilmación interesante, usted también podrá grabar desde una posición baja. Para grabar desde una posición baja, gire el visor hacia arriba. **[b]**

Coloque la videocámara en una superficie plana o utilice un trípode

Pruebe colocando la videocámara sobre una mesa u otra superficie plana de altura adecuada. Si posee un trípode para cámara fotográfica, podrá emplearlo también con esta videocámara.
Cuando emplee un trípode que no sea de Sony, asegúrese de que la longitud del tornillo del trípode sea inferior a 6,5 mm. De lo contrario, el tornillo podría dañar las partes internas de la videocámara.

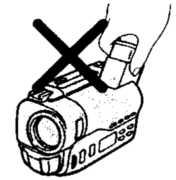
Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder **[c]**.
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window **[d]**.

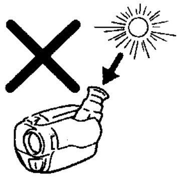
Precauciones sobre el visor

- No sujete la videocámara por el visor. **[c]**
- No deje la videocámara con el visor apuntando hacia el sol. Es posible que el interior del visor se deforme. Tenga cuidado al dejar la videocámara bajo el sol o cerca de una ventana. **[d]**

[c]



[d]



Checking the recorded picture

Verificación de las imágenes grabadas

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

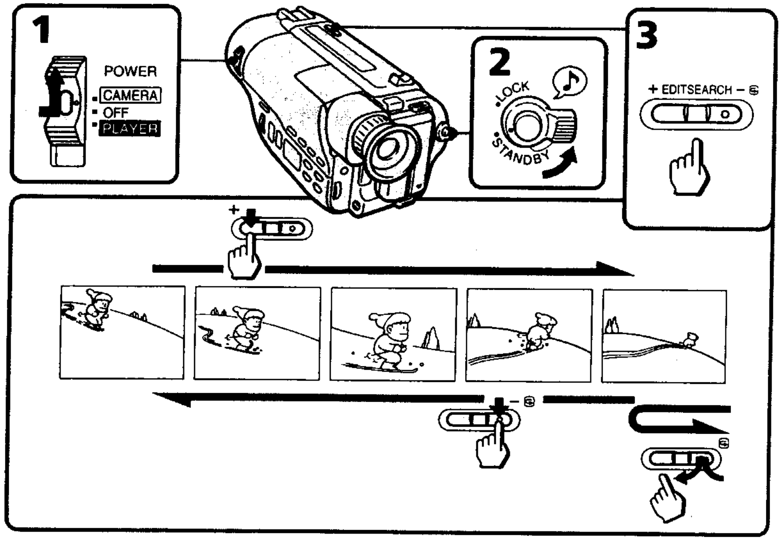
(3) Press the – (⊜) side of EDITSEARCH momentarily; the last few seconds of the recorded portion play back (**Rec Review**). Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side (**Edit Search**).

Utilizando EDITSEARCH, usted podrá revisar la última escena grabada o comprobar la imagen grabada en el visor.

(1) Manteniendo presionado el pequeño botón verde en el selector POWER, póngalo en CAMERA.

(2) Gire STANDBY hacia arriba.

(3) Presione momentáneamente el lado – (⊜) de EDITSEARCH; se reproducirán los últimos segundos de la parte filmada (**Revisión de la grabación**).
Mantenga presionado el lado – de EDITSEARCH hasta que la videocámara retroceda a la escena deseada. Se reproducirá la última parte grabada. Para avanzar la cinta, mantenga presionado el lado + (**Búsqueda de edición**).



To stop playback

Release EDITSEARCH.

To begin re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Para cesar la reproducción

Suelte EDITSEARCH.

Para reanudar la grabación

Presione START/STOP. La grabación se iniciará desde el punto en el que soltó EDITSEARCH. Mientras no extraiga el videocassette, la transición entre la última escena grabada y la siguiente será uniforme.

Connections for playback

You can use this camcorder as a VCR by connecting it to your TV for playback. There are some ways to connect the camcorder to your TV. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use mains for the power source.

Connecting directly to a VCR/TV with Video/Audio input jacks

When connecting the A/V connecting cable, make sure you connect the plugs to jacks of the same colour.

If your TV is already connected to a VCR

Open the jack cover and connect the camcorder to the LINE IN inputs on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR. If you are going to connect the camcorder using the S video cable (not supplied) **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]** (CCD-TR760E/TR810E only).

Conexiones para la reproducción

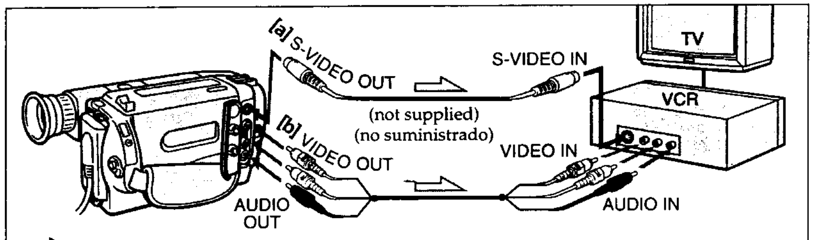
Para la reproducción, usted podrá utilizar esta videocámara para que funcione como videograbadora conectándola a su televisor. Existen varios métodos para conectar la videocámara al televisor. Para ver las imágenes reproducidas conectando la videocámara al televisor, se recomienda utilizar la corriente de la red como fuente de alimentación.

Conexión directa a una videograbadora/televisor provisto de tomas de entrada de vídeo/audio

Cuando conecte el cable conector de audio/vídeo, cerciórese de conectar las clavijas a las tomas del mismo color.

Si el televisor está conectado a una videograbadora

Abra la tapa de las tomas y conecte la videocámara a las entradas LINE IN de la videograbadora utilizando el cable conector de audio/vídeo suministrado. Ponga el selector de entrada de la videograbadora en LINE. Ponga el selector TV/VCR del televisor en VCR. Cuando conecte la videocámara empleando un cable de vídeo S (no suministrado) **[a]**, no será necesario conectar la clavija amarilla (vídeo) del cable conector de audio/vídeo **[b]** (CCD-TR760E/TR810E solamente).



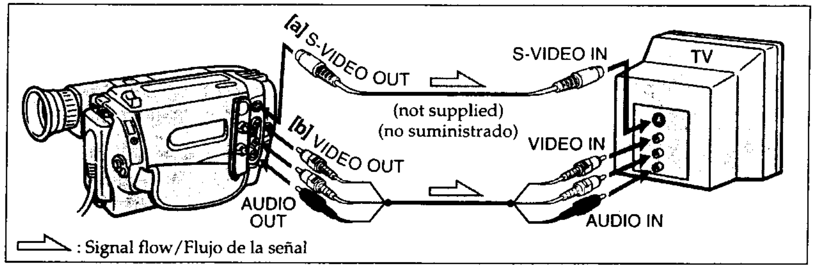
⇨ : Signal flow/Flujo de la señal

If you connect directly to TV

Open the jack cover and connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.

Conexión directa al televisor

Abra la tapa de las tomas y conecte la videocámara a las entradas del televisor empleando el cable conector de audio/vídeo suministrado. Ponga el selector TV/VCR en el televisor en VCR.



⇨ : Signal flow/Flujo de la señal

If your VCR or TV is a monaural type

Connect only the white plug for audio on both the camcorder and the VCR or the TV. With this connection, the sound is monaural.

To connect to a VCR or TV without Video/Audio input jacks

Use an RFU adaptor (not supplied).

If your TV/VCR has a 21-pin connector (EUROCONNECTOR)

Use the supplied 21-pin adaptor.

Si su televisor o videograbadora es de tipo monoaural

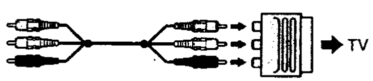
Conecte solamente la clavija blanca para audio a la videocámara y a la videograbadora o el televisor. Con esta conexión el sonido será monoaural.

Conexión a una videograbadora o televisor desprovisto de tomas de entrada de vídeo/audio

Utilice un adaptador de RFU (no suministrado).

Si su televisor/videograbadora posee conector de 21 terminales (EUROCONNCTOR)

Utilice el adaptador de 21 terminales suministrado.



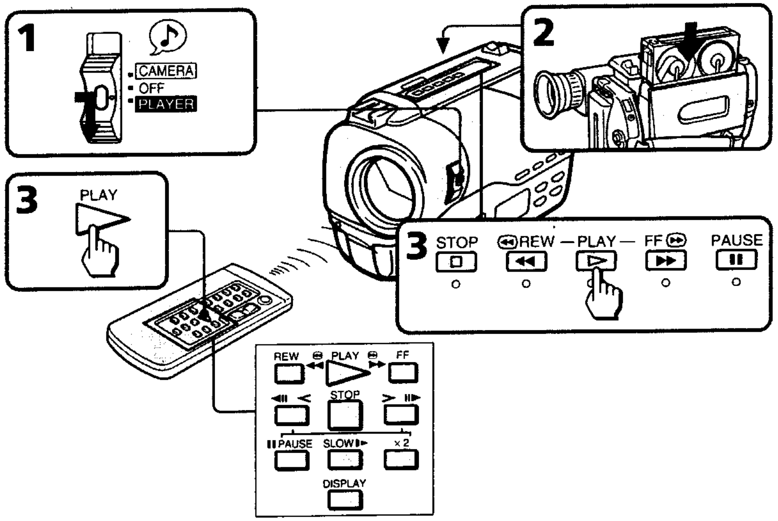
Playing back a tape

You can monitor the playback picture in the viewfinder. You can also monitor a picture on a TV screen, after connecting the camcorder to a TV or VCR.

(1) While pressing the small green button on the POWER switch, set it to PLAYER. The tape transport buttons light up.

(2) Insert the recorded tape with the window facing out.

(3) Press ▷ to start playback.



To stop playback, press □.
To rewind the tape, press ◀◀.
To fast-forward the tape rapidly, press ▶▶.

Using the remote commander

You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the R6 (size AA) batteries.

Reproducción de cintas

Usted podrá ver las imágenes reproducidas en el visor y también en la pantalla de televisor si conecta la videocámara a un televisor o una videograbadora.

(1) Manteniendo presionado el pequeño botón verde en el selector POWER, póngalo en PLAYER. Las teclas de transporte de la cinta se encenderán.

(2) Inserte una cinta grabada con la ventanilla hacia afuera.

(3) Presione ▷ para iniciar la reproducción.

Para cesar la reproducción, presione □.
Para rebobinar la cinta, presione ◀◀.
Para hacer que la cinta avance rápidamente, presione ▶▶.

Utilización del telemando

Usted podrá controlar la reproducción empleando el telemando suministrado. Antes de utilizarlo, inserte las pilas R6 (tamaño AA).

To monitor the sound while viewing the playback picture in the viewfinder
Connect headphones (not supplied) to the ∩ jack (p.97).

Note on the lens cover
The lens cover does not open when the POWER switch is set to PLAYER. Do not open the lens cover manually. It may cause malfunction.

Various playback modes

To view a still picture (playback pause)

Press ❚❚ during playback. To resume playback, press ❚❚ or ▷.

To locate a scene (picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)

Press SLOW ❚▶ on the Remote Commander during playback. To resume normal playback, press ▷. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To view the picture at double speed —CCD-TR760E/TR810E only

For double speed playback in the reverse direction, press ◀❚❚<, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >❚❚▶, then press x2 during playback. To resume normal playback, press ▷.

Para escuchar el sonido durante la contemplación de las imágenes reproducidas en el visor
Conecte unos auriculares (no suministrados) a la toma ∩ (pág.97).

Nota sobre la cubierta del objetivo
La cubierta del objetivo no se abrirá cuando el selector POWER esté en PLAYER. No la abra manualmente, ya que podría causar un mal funcionamiento.

Diversos modos de reproducción

Para ver una imagen fija (reproducción en pausa)

Presione ❚❚ durante la reproducción. Para reanudar la reproducción, presione ❚❚ o ▷.

Para localizar una escena (búsqueda de imagen)

Mantenga presionada ◀◀ o ▶▶ durante la reproducción. Para reanudar la reproducción normal, suelte la tecla.

Para ver las imágenes a gran velocidad durante el avance rápido o el rebobinado (skip scan)

Mantenga presionada ◀◀ durante el rebobinado o ▶▶ durante el avance de la cinta. Para reanudar la reproducción normal, presione ▷.

Para ver la imagen a velocidad 1/5 de la normal (reproducción a cámara lenta)

Presione SLOW ❚▶ del telemando durante la reproducción. Para reanudar la reproducción normal, presione ▷. Si la reproducción a cámara lenta dura más de aproximadamente 1 minuto, ésta cambiará automáticamente a la reproducción normal.

Para ver la imagen al doble de la velocidad normal —CCD-TR760E/TR810E solamente

Para reproducir a velocidad doble en sentido regresivo, presione ◀❚❚<, y después pulse x2 del telemando durante la reproducción. Para reproducir a velocidad doble en sentido progresivo, presione >❚❚▶, y después pulse x2 durante la reproducción. Para reanudar la reproducción normal, presione ▷.

To view the picture frame-by-frame —CCD-TR760E/TR810E only

Press ◀II< or >II▶ on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ▷.

To change the playback direction —CCD-TR760E/TR810E only

Press ◀II< on the Remote Commander for reverse direction or >II▶ on the Remote Commander for forward direction during playback. To resume normal playback, press ▷.

To display the viewfinder screen indicators on the TV

Press DISPLAY on the Remote Commander. To erase the indicators, press DISPLAY again.

To select the playback sound

Change the "HiFi SOUND" mode setting in the menu system.

Notes on playback

- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the center of the screen when you play back a tape in reverse if the RC time code (CCD-TR760E/TR810E only) or the Data Code (CCD-TR760E/TR810E only) is displayed on the screen. This is normal.
- You can play back the tapes recorded in the Hi8 video system though the function is very basic (CCD-TR610E only). You cannot get such finely detailed pictures as you could get with the video camera recorder with a Hi8 video system. Noise may result when you play back the tapes recorded in the Hi8 video system on the CCD-TR610E camcorder.

Displaying the date or time when you recorded — data code function

—CCD-TR760E/TR810E only

Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and the display window.

Para ver la imagen fotograma por fotograma —CCD-TR760E/TR810E solamente

Presione ◀II< o >II▶ del telemando en el modo de reproducción en pausa. Si mantiene presionada la tecla, podrá ver la imagen a 1/25 de la velocidad normal. Para reanudar la reproducción a velocidad normal, presione ▷.

Para cambiar el sentido de reproducción —CCD-TR760E/TR810E solamente

Presione ◀II< del telemando para reproducir en sentido regresivo o >II▶ del telemando para reproducir en sentido progresivo durante la reproducción. Para reanudar la reproducción normal, presione ▷.

Para visualizar los indicadores de la pantalla del visor en el televisor

Presione DISPLAY del telemando. Para borrar los indicadores, vuelva a presionar DISPLAY.

Para seleccionar el sonido de reproducción

Cambie el ajuste del modo "HiFi SOUND" en el sistema de menú.

Notas sobre la reproducción

- En los diversos modos de reproducción aparecerán franjas y el sonido se silenciará.
- Cuando el modo de reproducción en pausa dure 5 minutos, la videocámara pasará automáticamente al modo de parada.
- Si reproduce una cinta en sentido regresivo con el código de tiempo RC (CCD-TR760E/TR810E solamente) o el código de datos (CCD-TR760E/TR810E solamente) visualizados en la pantalla, aparecerá ruido horizontal en el centro de la pantalla. Esto es normal.
- Esta videocámara podrá reproducir las cintas grabadas con el sistema de vídeo Hi8 a pesar de poseer funciones muy básicas (CCD-TR610E solamente). Sin embargo, no podrá obtener imágenes tan detalladas como en una videocámara de sistema de vídeo Hi8. Es posible que aparezca ruido cuando reproduzca las cintas grabadas con el sistema de vídeo Hi8 en la videocámara CCD-TR610E.

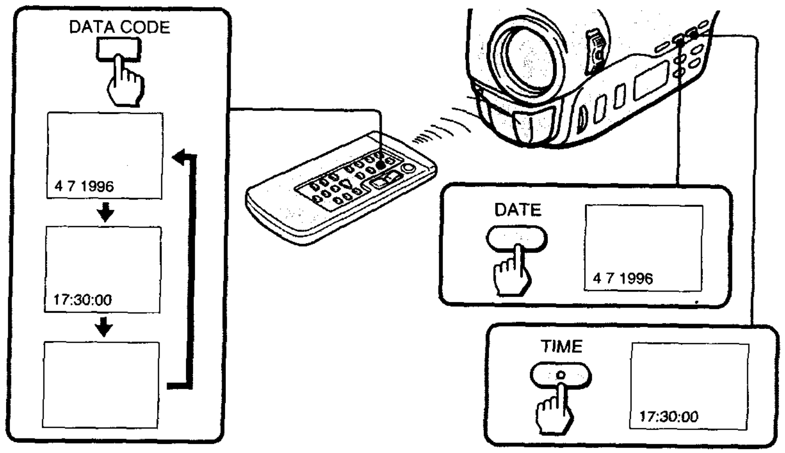
Visualización de la fecha o la hora de la grabación — Función de código de datos

—CCD-TR760E/TR810E solamente

Aunque no haya grabado la fecha o la hora durante la videofilmación, podrá visualizarla después (código de datos) en el televisor durante la reproducción o la edición. El código de datos podrá visualizarse también en el visor y la ventanilla visualizadora.

To display the date when you recorded

Press DATE on the camcorder, or press DATA CODE on the Remote Commander (CCD-TR760E/TR810E only). To make the date disappear, press DATE again or DATA CODE twice.



To display the time when you recorded

Press TIME on the camcorder, or press DATA CODE on the Remote Commander (CCD-TR760E/TR810E only) twice. To make the time disappear, press it again.

When bars (--:--:--) appear

- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.
- The tape was recorded in LP mode.
- The tape is being played back in variable speed (Slow Playback, etc.)
- An index signal is marked, the RC time code is written, or PCM after recording is made on the tape.

Para visualizar la fecha de la grabación

Presione DATE de la videocámara o DATA CODE del telemando (CCD-TR760E/TR810E solamente). Para que desaparezca la fecha, presione nuevamente DATE o dos veces DATA CODE.

Para visualizar la hora de la grabación

Presione TIME de la videocámara, o presione dos veces DATA CODE del telemando (CCD-TR760E/TR810E solamente). Para hacer que desaparezca la hora, vuelva a presionarla.

Las barras (--:--:--) aparecerán cuando

- reproduzca una parte en blanco de la cinta.
- la cinta se haya grabado con una videocámara que no posea función de código de datos.
- la cinta se haya grabado sin haber ajustado la fecha ni la hora en la videocámara.
- sea difícil de leer la cinta debido al daño o ruido en la misma.
- la cinta se haya grabado en el modo LP.
- la cinta esté reproduciendo a una velocidad variable (reproducción a cámara lenta, etc.).
- esté marcada una señal de índice, esté escrito el código de tiempo RC o se realice PCM después de que se haya grabado la cinta.

Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack and the mains. You can choose 12/24 V car battery for CCD-TR760E/TR810E only. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	Mains	Supplied AC power adaptor
Outdoors	Battery pack	InfoLITHIUM battery NP-F530 (supplied), NP-F730
In the car*	12 V or 24 V car battery	Car battery charger DC-V515

* CCD-TR760E/TR810E only.

Note on power sources

Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Using the mains

To use the supplied AC power adaptor:

CCD-TR760E/TR810E only:

(1) Connect the AC mains lead to the mains, then connect the connecting cord to the DC OUT jack on the AC power adaptor.

(2) Slide the connecting plate down into the guides at the bottom of the camcorder until it clicks.

Utilización con fuentes de alimentación alternativas

Con esta videocámara podrá elegir cualquiera de las siguientes fuentes de alimentación: batería y corriente de la red. Para la CCD-TR760E/TR810E solamente, podrá elegir la batería de un automóvil de 12 o 24 V. Elija la fuente de alimentación apropiada de acuerdo con el lugar donde desee utilizar la videocámara.

Lugar	Fuente de alimentación	Accesorio necesario
Interiores	Corriente de la red	Adaptador de alimentación de CA suministrado
Exteriores	Batería	Batería InfoLITHIUM NP-F530 (suministrada), NP-F730
En un automóvil*	Batería de automóvil de 12 o 24 V	Cargador de batería DC-V515

* CCD-TR760E/TR810E solamente

Nota sobre las fuentes de alimentación

Si desconecta la fuente de alimentación o quita la batería durante la videofilmación o la reproducción, es posible que se dañe la cinta insertada. En tal caso, vuelva a restablecer inmediatamente la alimentación.

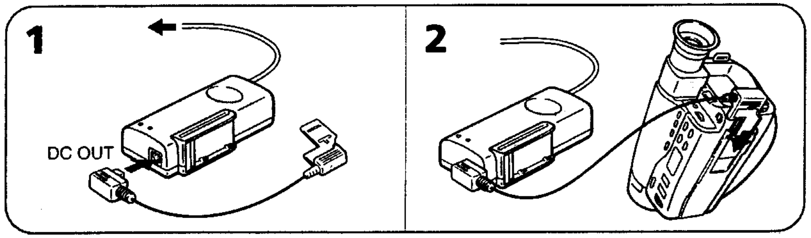
Utilización con la corriente de la red

Para utilizar el adaptador de alimentación de CA suministrado:

CCD-TR760E/TR810E solamente:

(1) Conecte el cable de alimentación de CA a una toma de la red, y después conecte el cable conector a la toma DC OUT del adaptador de alimentación de CA.

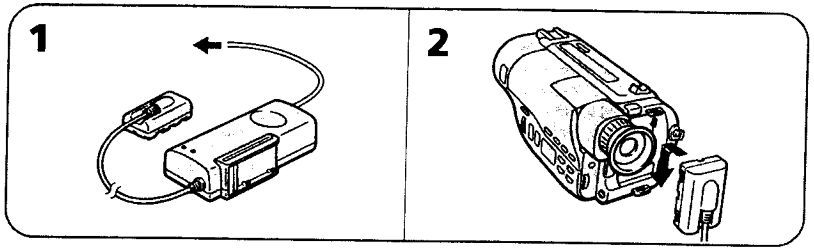
(2) Deslizando la placa conectora hacia abajo, insértela en las guías de la base de la videocámara hasta que chasquee.



CCD-TR610E only:

(1) Connect the AC mains lead to the mains.

(2) Slide the connecting plate down into the guides at the rear of the camcorder until it clicks.



Charging the battery pack —CCD-TR760E/TR810E only

After connecting the mains lead to the mains and setting the POWER switch on the camcorder to OFF, you can charge the battery pack in either of the following two ways:
(When charging begins, the CHARGE lamp lights.)

- Charging the battery attached to the camcorder
  Leave the battery pack attached to the camcorder. (The NP-F530 battery pack requires about 210 minutes for a full charge and about 150 minutes for a normal charge.)
- Charging two battery packs at the same time
  Attach one battery pack to the AC power adaptor and the other to the camcorder. Both are charged simultaneously. When charged, both lamps go out (normal charge). If either lamp is still lit, both batteries are not charged (the NP-F530 battery packs require about 240 minutes for a full charge and about 180 minutes for a normal charge).

Notes on the VTR/CAMERA lamp

- The VTR/CAMERA lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the VTR/CAMERA lamp does not light, disconnect the mains lead. After about one minute, reconnect the mains lead.

CCD-TR610E solamente:

(1) Conecte el cable de alimentación a una toma de la red.

(2) Deslizando la placa conectora hacia abajo, insértela en las guías de la parte posterior de la videocámara hasta que chasquee.

Carga de la batería —CCD-TR760E/TR810E solamente

Después de conectar el cable de alimentación a la red y poner el selector POWER de la videocámara en OFF, podrá cargar la batería de una de las siguientes dos formas:
(Cuando comience la carga, la lámpara CHARGE se encenderá.)

- Carga de la batería fijada a la videocámara
  Deje fijada la batería a la videocámara. (La batería NP-F530 tardará unos 210 minutos en cargarse por completo y unos 150 minutos para la carga normal.)
- Carga simultánea de dos baterías
  Fije una batería al adaptador de alimentación de CA y la otra a la videocámara. Ambas baterías se cargarán simultáneamente. Cuando se hayan cargado, ambas lámparas se apagarán (carga normal). Si una de las lámparas permanece encendida, ambas baterías no se habrán cargado (La batería NP-F530 tardará unos 240 minutos en cargarse por completo y unos 180 minutos para la carga normal.)

Notas sobre la lámpara VTR/CAMERA

- Es normal que esta lámpara permanezca encendida durante un momento aunque desenchufe la unidad después de utilizarla.
- Cuando la lámpara VTR/CAMERA no se encienda, desconecte el cable de alimentación. Aproximadamente un minuto después, vuelva a conectar el cable.

To remove the connecting plate
Pull out the connecting plate by the plate. Never pull the connecting cord itself.

WARNING
The mains lead must only be changed at a qualified service shop.

PRECAUTION
The set is not disconnected from the AC power source (mains) as long as it is connected to the mains, even if the set itself has been turned off.

Using the Battery Case

Use the battery case (supplied) and six LR6 (size AA) Sony Alkaline batteries (not supplied).

(1) Remove the battery holder from the battery case.
(2) Insert six new alkaline batteries into the battery holder, following the marking on the holder to be sure the batteries are installed in the correct direction.
(3) Insert the battery holder with the alkaline batteries.
(4) Insert the battery case with the alkaline batteries to the battery mounting surface of the camcorder in the same way as the battery pack (p.11).

Para quitar la placa conectora
Tire de la propia placa conectora. Nunca tire del cable de la misma.

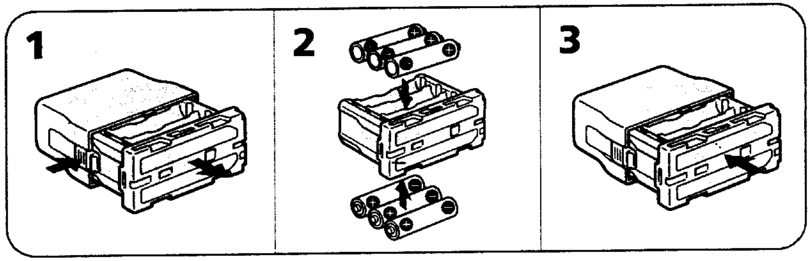
ADVERTENCIA
El cable de alimentación de la red deberá cambiarse solamente en una estación de servicios cualificada.

PRECAUCIÓN
Este aparato no se desconectará de la fuente de alimentación de CA (red) mientras esté enchufado en una toma de la misma, incluso aunque haya desconectado su alimentación.

Utilización con la caja de pilas

Utilice la caja de pilas (suministrada) y seis pilas alcalinas LR6 (tamaño AA) Sony (no suministradas).

(1) Extraiga el portapilas de la caja de pilas.
(2) Inserte seis pilas alcalinas nuevas en el portapilas, observando la marca del portapilas para colocar correctamente las pilas.
(3) Inserte el portapilas con las pilas alcalinas.
(4) Coloque la caja de pilas con las pilas alcalinas en la superficie de montaje de la batería de la videocámara de la misma manera que la batería (pág.11).



Using alternative power sources

Utilización con fuentes de alimentación alternativas

Battery Life

Using alkaline batteries at 25°C (77°F).

Model	Continuous recording time	Typical recording time
CCD-TR610E	130 min.	80 min.
CCD-TR760E	135 min.	80 min.
CCD-TR810E	130 min.	80 min.

Notes
- The battery life may be shorter depending on the using environment.
- The above battery lives are estimates. The battery life may be shorter depending on the storage condition of the battery before being purchased and temperature.
- You may not use the battery case in cold environment.

To remove the battery case
The battery case is removed in the same way as the battery pack (p.11).
When you replace the batteries, be sure to remove the battery case from the camcorder to prevent malfunction.

Using a car battery

—CCD-TR760E/TR810E only
Use the DC-V515 car battery charger (not supplied). Connect the car battery cord to the cigarette lighter socket of a car (12 V or 24 V). Connect the car battery charger and the camcorder using the supplied connecting cord.

To remove the car battery charger
The car battery charger is removed in the same way as the battery pack.

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Vida útil de las pilas

Utilizando pilas alcalinas a 25°C.

Modelo	Tiempo de videofilmación continua	Tiempo de videofilmación típica
CCD-TR610E	130 min.	80 min.
CCD-TR760E	135 min.	80 min.
CCD-TR810E	130 min.	80 min.

Notas
- La vida útil de las pilas puede acortarse según la forma que se utilicen.
- La duración de las pilas que se indica arriba es estimada. La duración de las pilas puede acortarse según la condición de almacenamiento de las pilas antes de su adquisición y la temperatura.
- Es posible que la caja de pilas no pueda emplearse en climas fríos.

Para quitar la caja de pilas
Quítela de igual forma que la batería (pág.11).
Cuando reemplace las pilas, cerciórese de quitar la caja de pilas de la videocámara para prevenir mal funcionamientos.

Utilización con la batería de un automóvil

—CCD-TR760E/TR810E solamente
Emplee un cargador de batería de automóvil DC-V515 (no suministrado). Conecte el cable de batería de automóvil a la toma del encendedor de cigarrillos de un automóvil (12 o 24 V). Conecte el cargador de batería y la videocámara empleando el cable conector suministrado.

Para quitar el cargador de batería de automóvil
Quítelo igual que la batería.

Esta marca indica que este producto es un accesorio genuino para los productos de vídeo Sony.
A la hora de adquirir los productos de vídeo Sony, recomendamos adquirir los accesorios con esta marca "GENUINE VIDEO ACCESSORIES".

Changing the mode settings

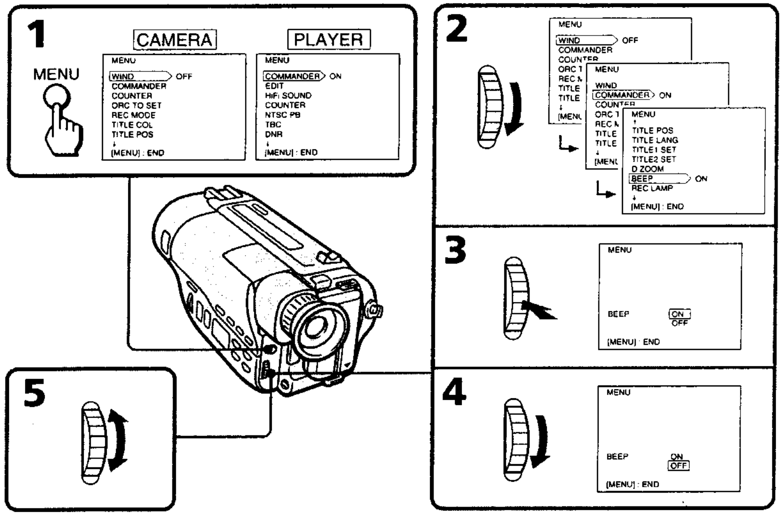
Cambio de los ajustes de modo

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

(1) Press MENU to display the menu.
(2) Turn the control dial so that the desired item is highlighted white.
(3) Press the control dial. The setting menu appears.
(4) Turn the control dial to highlight a setting, and press the control dial to select it.
(5) If you want to change the other modes, repeat steps 2 to 4.
(6) Press MENU to erase the menu display.

Usted podrá cambiar los ajustes de modo en el sistema del menú para disfrutar más de las características y funciones de la videocámara.

(1) Presione MENU para visualizar el menú.
(2) Gire el dial de control para hacer resaltar el ítem deseado en blanco.
(3) Presione el dial de control. Aparecerá el memú de ajuste.
(4) Gire el dial de control para hacer resaltar un ajuste, y presione dicho dial para seleccionarlo.
(5) Si desea cambiar los otros modos, repita los pasos 2 a 4.
(6) Presione MENU para borrar la visualización del menú.



Selecting the mode setting of each item

Items for both CAMERA and PLAYER modes

COUNTER* <NORMAL/TIME CODE> —CCD-TR760E/TR810E only

- Normally select NORMAL.
- Select TIME CODE to display the RC time code in order to edit more precisely. Even if the battery is disconnected from the camcorder, the RC time code is not canceled.

Selección de los ajustes de modo en cada ítem

Ítems comunes en los modos CAMERA y PLAYER

COUNTER* <NORMAL/TIME CODE> —CCD-TR760E/TR810E solamente

- Normalmente seleccione NORMAL.
- Seleccione TIME CODE de forma que se visualice el código de tiempo RC para editar con más precisión. Aunque la batería esté desconectada de la videocámara, el código de tiempo RC no se cancelará.

COMMANDER <ON/OFF>

- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

BEEP* <ON/OFF>

- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

Items for CAMERA mode only

WIND <ON/OFF>

- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

ORC TO SET* <ORC ON>

Select this item and press the START/STOP button to automatically adjust the recording condition to get the best possible recording. If you have already perform this function, "ORC ON" is displayed.

REC MODE* <SP/LP>

- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.

D ZOOM* <ON/OFF>

- Select ON to activate digital zooming.
- Select OFF not to use the digital zoom. The camera goes back to 15x zoom.

AUTO DATE* <ON/OFF> —CCD-TR610E only

- Select ON to record the date for 10 seconds after recording has started.
- Select OFF not to record the date.

REC LAMP* <ON/OFF>

- Select OFF when you do not want the camera recording/battery lamp at the front of the unit to light up.
- Normally select ON.

TITLE COL* <WHITE/YELLOW/VIOLET/RED/CYAN/GREEN/BLUE>

Select the colour of the title.

COMMANDER <ON/OFF>

- Seleccione ON cuando desee emplear el telemando suministrado para controlar la videocámara.
- Seleccione OFF cuando no vaya a emplear el telemando.

BEEP* <ON/OFF>

- Seleccione ON para oír el pitido cuando comience o pare la videofilmación, etc.
- Seleccione OFF si no desea oír el pitido.

Ítems para el modo CAMERA solamente

WIND <ON/OFF>

- Seleccione ON para reducir el ruido del viento durante la videofilmación con viento fuerte.
- Normalmente seleccione OFF.

ORC TO SET* <ORC ON>

Seleccione este ítem y presione la tecla START/STOP de forma que la videocámara ajuste automáticamente la condición de grabación para obtener la mejor grabación posible. Cuando esta función esté activada, se visualizará "ORC ON".

REC MODE* <SP/LP>

- Seleccione SP para grabar en el modo SP (duración estándar).
- Seleccione LP para grabar en el modo LP (duración larga).

D ZOOM* <ON/OFF>

- Seleccione ON para activar el zoom digital.
- En caso contrario, seleccione OFF. La videocámara volverá a ajustar al zoom de 15x.

AUTO DATE* <ON/OFF> —CCD-TR610E solamente

- Seleccione ON para que la fecha se grabe durante 10 segundos desde el inicio de la filmación.
- Seleccione OFF si no desea grabar la fecha.

REC LAMP* <ON/OFF>

- Seleccione OFF cuando no desee que la lámpara de videofilmación/estado de la batería que se encuentra en la parte frontal de la unidad se encienda.
- Normalmente seleccione ON.

TITLE COL* <WHITE/YELLOW/VIOLET/RED/CYAN/GREEN/BLUE>

Seleccione el color del título.

TITLE POS* <CENTER/BOTTOM>
- Select CENTER to centre the title in the picture.
- Select BOTTOM to position the title at the bottom of the picture.

TITLE LANG* <ENGLISH/FRANÇAIS/ESPAÑOL/ PORTUGUÊS/DEUTSCH/NEDERLANDS/ ITALIANO>
Select the language of the preset titles.

TITLE 1 SET* TITLE 2 SET*
Select to store your own original titles.

CLOCK SET*
Select this item to reset the date or time.

Items for PLAYER mode only

EDIT <ON/OFF>
- Select ON to minimize picture deterioration when editing.
- Normally select OFF.

HiFi SOUND <STEREO/1/2>
- Normally select STEREO.
- Select 1 or 2 to play back a dual sound track tape.

NTSC PB* <ON PAL TV/NTSC 4.43>
- Normally select ON PAL TV.
- Select NTSC 4.43 when playing back a tape recorded in the NTSC colour system. When you play back a tape on a multi-system TV, select an appropriate mode by looking at the screen.

TBC* <ON/OFF> (for CCD-TR760E/TR810E only)
- Select ON to correct for jitter.
- Select OFF not to correct for jitter.
  When you use an old tape on which video games images have been recorded or which has been recorded over many times, set TBC to OFF.

DNR* <ON/OFF> (for CCD-TR760E/TR810E only)
- Select ON to reduce noise.
- Select OFF not to reduce noise.
  If you mind afterimages crated by shooting a rapid moving subject, we recommend selecting the OFF function.

* These settings are retained even when the battery is removed, as long as the lithium battery is in place.

TITLE POS* <CENTER/BOTTOM>
- Seleccione CENTER para que el título quede en el centro de la imagen.
- Seleccione BOTTOM para situar el título en la parte inferior de la imagen.

TITLE LANG* <ENGLISH/FRANÇAIS/ESPAÑOL/ PORTUGUÊS/DEUTSCH/NEDERLANDS/ ITALIANO>
Seleccione el idioma de los títulos memorizados.

TITLE 1 SET* TITLE 2 SET*
Seleccione para almacenar sus títulos originales.

CLOCK SET*
Seleccione este ítem para reajustar la fecha o la hora.

Ítems para el modo PLAYER solamente

EDIT <ON/OFF>
- Seleccione ON para mantener al mínimo la degradación de la imagen durante la edición.
- Normalmente seleccione OFF.

HiFi SOUND <STEREO/1/2>
- Normalmente seleccione STEREO.
- Seleccione 1 o 2 para reproducir una cinta grabada con sonido doble.

NTSC PB* <ON PAL TV/NTSC 4.43>
- Normalmente seleccione ON PAL TV.
- Seleccione NTSC 4.43 para reproducir una cinta grabada con el sistema de color NTSC. Cuando reproduzca una cinta en un televisor de sistema múltiple, seleccione el modo apropiado viendo las imágenes en la pantalla.

TBC* <ON/OFF> (para la CCD-TR760E/TR810E solamente)
- Seleccione ON para corregir la distorsión
- Seleccione OFF cuando no desee corregirla.
  Cuando utilice una cinta con imágenes de videojuegos o que haya sido grabada varias veces, ponga TBC en OFF.

DNR* <ON/OFF> (para la CCD-TR760E/TR810E solamente)
- Seleccione ON para reducir el ruido.
- En caso contrario, seleccione OFF.
  Si se generan imágenes residuales al videofilmar motivos de movimiento rápido, se recomienda seleccionar OFF.

* Estos ajustes se mantendrán aunque quite la batería mientras esté colocada la pila de litio.

Fade-in and fade-out

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound increases. When fading out, the picture gradually fades to black or mosaic while the sound decreases.

When fading in [a]

(1) While the camcorder is in Standby mode, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

(1) During recording, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.

Aumento gradual y desvanecimiento

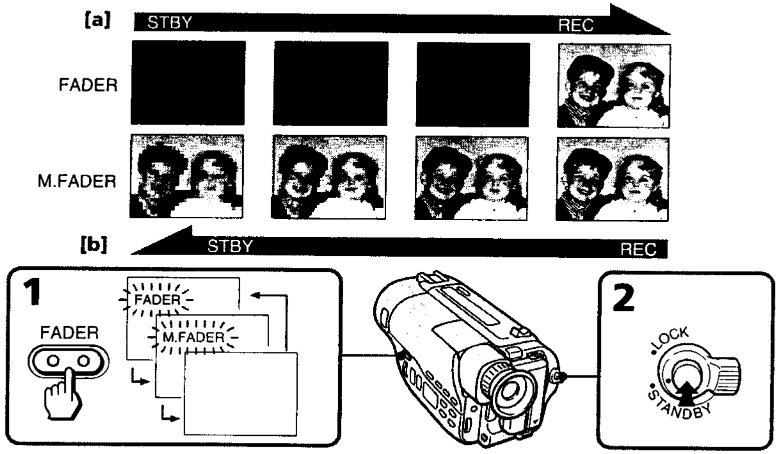
Usted podrá realizar el aumento gradual o el desvanecimiento para dar a su videofilmación un aspecto profesional.
Cuando realice el aumento gradual, la imagen aparecerá gradualmente desde un fondo negro o mosaico mientras que el sonido también aumenta gradualmente. Cuando realice el desvanecimiento, la imagen desaparecerá gradualmente hasta convertirse en una pantalla negra o mosaico mientras disminuye el sonido.

Aumento gradual [a]

(1) Mientras la videocámara esté en el modo de espera, presione FADER. El indicador de aumento gradual/desvanecimiento comenzará a parpadear.
(2) Presione START/STOP para iniciar la videofilmación. El indicador dejará de parpadear.

Desvanecimiento [b]

(1) Durante la videofilmación, presione FADER. El indicador de aumento gradual/ desvanecimiento comenzará a parpadear.
(2) Presione START/STOP para parar la videofilmación. El indicador dejará de parpadear y la grabación cesará.



To cancel the fade-in/fade-out function

Before pressing START/STOP, press FADER until the fade indicator disappears.

When the date or time indicator is displayed
The date or time indicator does not fade in or fade out.

When the title is displayed
You cannot use the FADER function. When FADER is set, you cannot superimpose a title.

When START/STOP MODE switch is set to 5 SEC or ⏏
You cannot use the FADER function.

Para cancelar la función de aumento gradual/desvanecimiento

Antes de presionar START/STOP, presione FADER hasta que desaparezca el indicador de aumento gradual/desvanecimiento.

Cuando se visualice el indicador de la fecha o la hora
Estos indicadores no aumentarán gradualmente ni se desvanecerán.

Cuando se visualice un título
No podrá utilizar la función FADER. Cuando FADER esté activada, no podrá superponer un título.

Cuando el selector START/STOP MODE esté en 5 SEC o ⏏
No podrá utilizar la función FADER.

Using the wide mode function

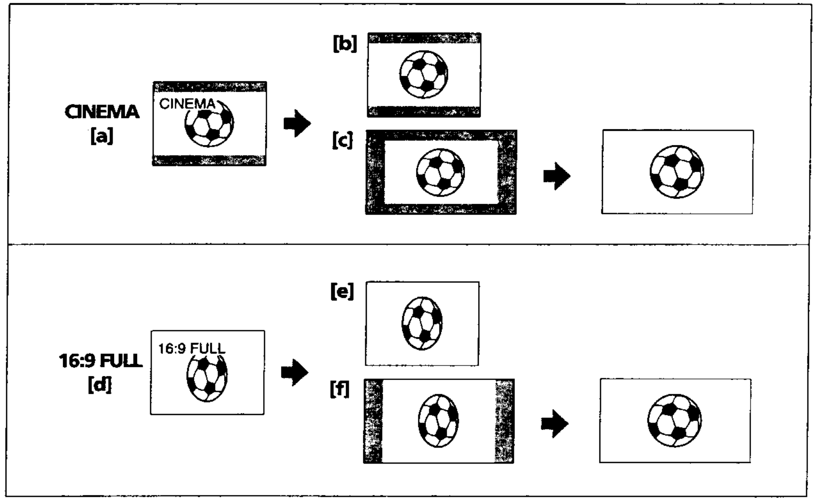
Utilización de la función de imagen panorámica

Selecting the desired mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).

Selección del modo deseado

Usted podrá grabar una imagen como la del cine (CINEMA) o una imagen alargada para verla en un televisor panorámico 16:9 (16:9 FULL).



CINEMA
Black bands appear at the top and the bottom of the screen, and the viewfinder **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**. When you select the CINEMA mode, DATE, TIME and the battery indicators are displayed above.

16:9 FULL
The picture in the viewfinder **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

CINEMA
En las partes inferiores y superiores de la pantalla aparecerán franjas negras y la pantalla del visor **[a]** y la de un televisor normal **[b]** aparecerán como alargadas. La imagen podrá verse también sin las bandas negras en un televisor panorámico **[c]**. Cuando seleccione el modo CINEMA, los indicadores DATE, TIME y de la batería se visualizarán en la parte superior.

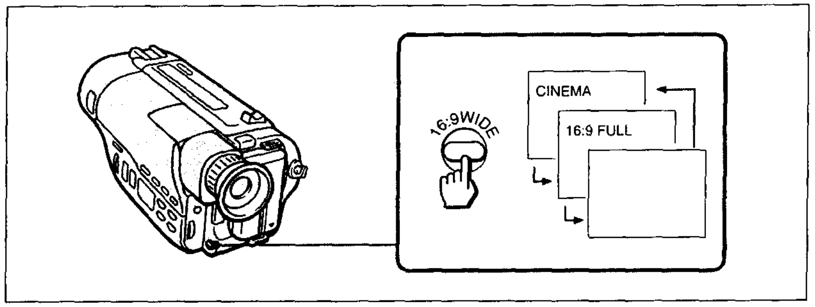
16:9 FULL
La imagen en el visor **[d]** o en un televisor normal **[e]** se comprime horizontalmente. Las imágenes normales podrán verse en un televisor de pantalla panorámica **[f]**.

Using the wide mode function

While the camcorder is in Standby mode, press 16:9 WIDE repeatedly so that the desired mode indicator appears in viewfinder. While recording, you cannot change the mode.

Utilización de la función de modo panorámico

Mientras la videocámara esté en el modo de espera, presione 16:9 WIDE repetidamente de forma que en el visor aparezca el indicador del modo deseado. Durante la grabación, no podrá cambiar el modo.



To cancel wide mode

Press 16:9 WIDE repeatedly until the wide mode indicator disappears.

To watch the tape recorded in wide mode

To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

Notes on wide mode

- If wide mode is set to 16:9 FULL, the Steady Shot function does not work and the " ✋ " indicator flashes.
- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.
- The wide mode is canceled automatically 5 minutes after you remove the power source.
- When recording, you cannot change the mode. (While the camcorder is in Standby mode, you can change the mode.)

Para cancelar el modo panorámico

Presione repetidamente 16:9 WIDE hasta que desaparezca el indicador del modo panorámico.

Para ver la cinta grabada en el modo panorámico

Para ver una cinta grabada en el modo CINEMA, ajuste el modo de pantalla del televisor panorámico al modo de zoom. Para ver una cinta grabada en el modo 16:9 FULL, ajústelo al modo completo. Con respecto a los detalles, consulte el manual de instrucciones del televisor.
Tenga en cuenta que las imágenes grabadas en el modo 16:9 FULL se verán comprimidas en un televisor normal.

Notas sobre el modo panorámico

- Si el modo panorámico está ajustado a 16:9 FULL, la función de videofilmación estable no trabajará y el indicador ✋ parpadeará.
- Cuando grabe en el modo 16:9 FULL, el indicador de la fecha o la hora se ensanchará en un televisor panorámico.
- Si duplica una cinta, ésta se copiará en el mismo modo que la grabación original.
- El modo panorámico se cancelará automáticamente 5 minutos después de desconectar la fuente de alimentación.
- Durante la grabación no podrá cambiar el modo. (Podrá cambiarlo mientras la videocámara esté en el modo de espera.)

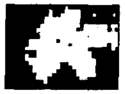
Enjoying picture effect

Creación de efecto en la imagen

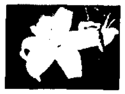
Selecting picture effect

You can make pictures like those of television with the Picture Effect function.

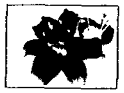
[a]



[b]



[c]



MOSAIC [a]
The picture is mosaic.

SOLARIZE [b]
The light intensity is more clear, and the picture looks like an illustration.

B&W
The picture is monochrome (black and white).

SEPIA
The picture is sepia.

NEG. ART [c]
The picture is reversed.

PASTEL [d]
Emphasize contrast and gives picture animation-like colours.

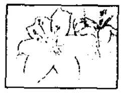
SLIM [e]
The picture expands vertically.

STRETCH [f]
The picture expands horizontally.

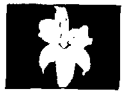
Selección del efecto en la imagen

Usted podrá confeccionar imágenes como las de televisor con la función de efecto en la imagen.

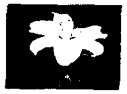
[d]



[e]



[f]



MOSAIC [a]
La imagen es de mosaico.

SOLARIZE [b]
La intensidad de la luz es más clara, y la imagen se ve como una ilustración.

B&W
La imagen es monocroma (blanco y negro).

SEPIA
La imagen es sepia.

NEG. ART [c]
La imagen está invertida.

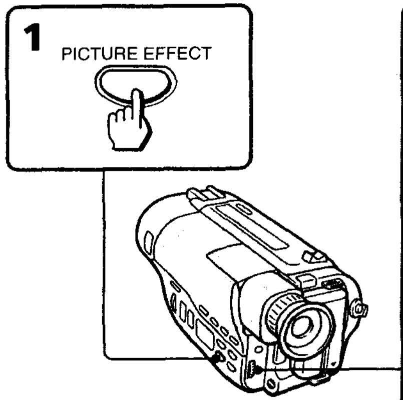
PASTEL [d]
Enfatiza el contraste y las imágenes se ven con los colores como de animación.

SLIM [e]
La imagen se ve alargada verticalmente.

STRETCH [f]
La imagen se ve ampliada horizontalmente.

Using picture effect function

(1) Press PICTURE EFFECT.
(2) Turn the control dial to select the desired picture effect mode.



To turn off picture effect

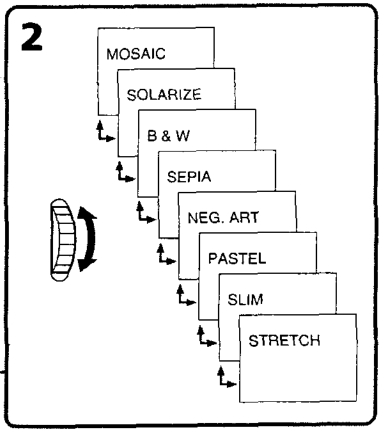
Press PICTURE EFFECT. The indicator in the viewfinder goes out.

Note on the picture effect

- The picture Efect menu cycle as follows:
  MOSAIC ↔ SOLARIZE ↔ B&W ↔ SEPIA ↔ NEG. ART ↔ PASTEL ↔ SLIM ↔ STRETCH
- When you turn the power off, the camcorder returns automatically to normal mode.

Empleo de la función de efecto en la imagen

(1) Presione PICTURE EFFECT.
(2) Gire el dial de control para seleccionar el modo de efecto en la imagen que desee.



Para desactivar el efecto en la imagen

Presione PICTURE EFFECT. El indicador desaparecerá del visor.

Notas sobre el efecto en la imagen

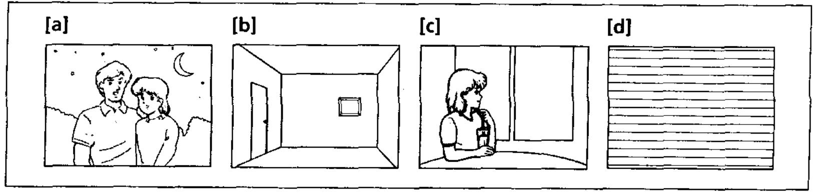
- El ciclo del menú de efecto en la imagen es el siguiente:
  MOSAIC ↔ SOLARIZE ↔ B&W ↔ SEPIA ↔ NEG.ART ↔ PASTEL ↔ SLIM ↔ STRETCH
- Cuando desconecte la alimentación, la videocámara volverá automáticamente al modo normal.

Focusing manually

Enfoque manual

When to use manual focus

In the following cases you should obtain better results by adjusting the focus manually.



- Insufficient light **[a]**
- Subjects with little contrast — walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting the light
- Shooting a stationary subject when using a tripod

Cuándo utilizar el enfoque manual

En los casos siguientes se obtendrán mejores resultados ajustando manualmente el enfoque.

- Luz insuficiente **[a]**
- Motivos con poco contraste — paredes, cielo, etc. **[b]**
- Demasiado brillo detrás del motivo **[c]**
- Rayas horizontales **[d]**
- Motivos situados detrás de un vidrio empañado
- Motivos situados detrás de redes, etc.
- Motivo brillante o que refleja luz
- Cuando videofilme un motivo estacionario utilizando un trípode

Focusing manually

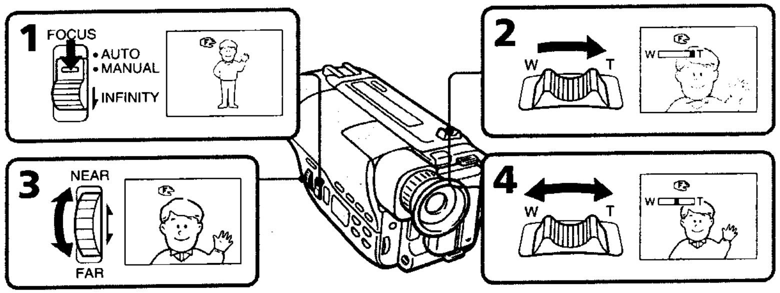
When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Set FOCUS to MANUAL. The ◎ indicator appears in the viewfinder.
(2) Move the power zoom lever to the "T" side until the lever reaches the end.
(3) Turn the FAR/NEAR dial to achieve a sharp focus. Be sure not to touch the built-in microphone when you turn the FAR/NEAR dial.
(4) Set the desired shot length using the power zoom lever.

Enfoque manual

Cuando ajuste manualmente el enfoque, ajuste primero a la posición de telefoto antes de filmar y después ajuste la distancia de videofilmación.

(1) Ponga FOCUS en MANUAL. En el visor aparecerá el indicador ◎.
(2) Mueva la palanca del zoom motorizado hacia el lado "T" (telefoto) hasta que la palanca llegue al extremo.
(3) Gire el dial FAR/NEAR hasta enfocar nítidamente. Tenga cuidado de no tocar el micrófono incorporado cuando gire el dial FAR/NEAR.
(4) Ajuste la distancia de videofilmación deseada utilizando la palanca del zoom motorizado.



To return to autofocus mode

Set FOCUS to AUTO. The ◎ indicator in the viewfinder disappears.

Shooting in relatively dark places

Shoot at wide-angle after focusing in the telephoto position.

To record a very distant subject

Push FOCUS down to INFINITY. The lens focuses on the most distant subject while FOCUS is held down. When it is released, manual focus mode is resumed. Use this function when shooting through a window or a screen, to focus on a most distant subject.

Note on manual focusing

The ◎ indicator changes to the followings:

▲: When recording an infinitely distant subject.
●: When there is something too close to focus on.

Para volver al modo de enfoque automático

Ponga FOCUS en AUTO. El indicador ◎ desaparecerá del visor.

Videofilmación en lugares relativamente oscuros

Videofilme en gran angular después de haber enfocado en telefoto.

Para grabar un motivo que está muy lejos

Presione FOCUS hacia abajo hasta INFINITY. El objetivo enfocará el motivo más lejano mientras mantenga FOCUS hacia abajo. Cuando lo suelte, la videocámara volverá al modo de enfoque manual. Utilice esta función cuando videofilme a través de una ventana o una pantalla, para enfocar el motivo muy lejano.

Nota sobre el enfoque manual

El indicador ◎ cambiará como sigue:

▲: Cuando videofilme un motivo que esté muy lejos.
●: Cuando haya algo demasiado cerca para enfocar.

Using the PROGRAM AE function

Empleo de la función PROGRAM AE

Selecting the best mode

You can select one of six PROGRAM AE (Auto Exposure) modes to suit your shooting situation, referring to the following.

Spotlight mode
For subjects in spotlight, such as at the theatre or a formal event.

Soft portrait mode
For zooming in on a still subject in telephoto mode, or for a subject behind an obstacle such as a screen. Creates a soft background for subjects such as people or flowers, and faithfully reproduces skin colour.

Sports lesson mode
For recording fast-moving subjects such as in tennis or golf games.

Beach & ski mode
For people or faces in strong light or reflected light, such as at a beach in midsummer or on a snowy winter mountain.

Sunset & moon mode
For recording subjects in dark environnments such as sunsets, fireworks, neon signs, or general night views.

Landscape mode
For distant subjects (more than 10 meters away) such as mountains or when recording a subject behind an obstacle such as a window or screen.

While selecting spotlight mode, sports lesson mode or beach & ski mode
The camcorder automatically controls the auto focus function not to focus on close subject.

While selecting sunset mode or landscape mode
The camcorder automatically controls the auto focus function to focus on a distant view.

Selección del modo apropiado

Usted podrá seleccionar entre seis modos de PROGRAM AE (exposición automática programada) de acuerdo con la condición de videofilmación, consultando los siguientes ejemplos.

Modo de luz concentrada
Para los motivos iluminados con una luz concentrada, como en un teatro o un acontecimiento formal.

Modo de retrato suave
Para acercar un motivo fijo en el modo de telefoto o para un motivo que esté detrás de un obstáculo como una pantalla. Dará un fondo suave a los motivos como personas o flores, y el color de la piel se reproducirá fielmente.

Modo de lección de deportes
Para videofilmar motivos de gran movimiento como en un juego de tenis o golf.

Modo de playa y esquí
Para las personas o rostros bajo una luz fuerte o reflejada, como en una playa en pleno verano o en una montaña nevada invernal.

Modo de puesta del sol y la luna
Para videofilmar motivos en un lugar oscuro como la puesta del sol, fuegos artificiales, letreros de neón o vistas nocturnas.

Modo de paisaje
Para motivos lejanos (a más de 10 metros) como montañas o cuando videofilme un motivo detrás de un obstáculo como una ventana o una pantalla.

En los modos de luz concentrada, lección de deportes, o playa y esquí
La videocámara controlará automáticamente la función de enfoque automático de forma que no enfoque un objeto cercano.

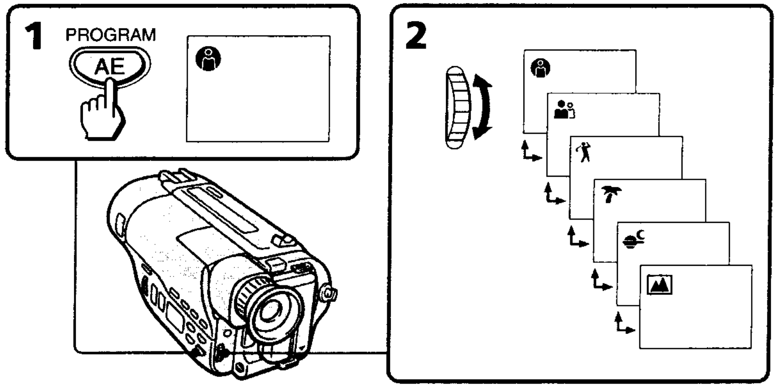
En los modos de puesta del sol o de paisaje
La videocámara controlará automáticamente la función de enfoque automático de forma que enfoque una vista lejana.

Using the PROGRAM AE function

(1) Press PROGRAM AE.
(2) Turn the control dial to select the desired PROGRAM AE mode.

Empleo de la función PROGRAM AE

(1) Presione PROGRAM AE.
(2) Gire el dial de control para seleccionar el modo PROGRAM AE deseado.



To turn off program AE

Press PROGRAM AE.

Note on shutter speed

The shutter speed in each PROGRAM AE mode is as follows:
Soft portrait mode — from 1/50 to 1/425
Sports lesson mode — from 1/215 to 1/4000
Beach & ski mode — from 1/50 to 1/215

When program AE is functioning

You can adjust the exposure.

Para desactivar la función PROGRAM AE

Presione PROGRAM AE.

Nota sobre la velocidad de obturación

La velocidad de obturación en cada modo PROGRAME AE es el siguiente:
Modo de retrato suave — entre 1/50 y 1/425
Modo de lección de deportes — entre 1/215 y 1/4000
Modo de playa y esquí — entre 1/50 y 1/215

Cuando la función PROGRAM AE esté activada

Podrá ajustar la exposición.

Shooting with backlighting

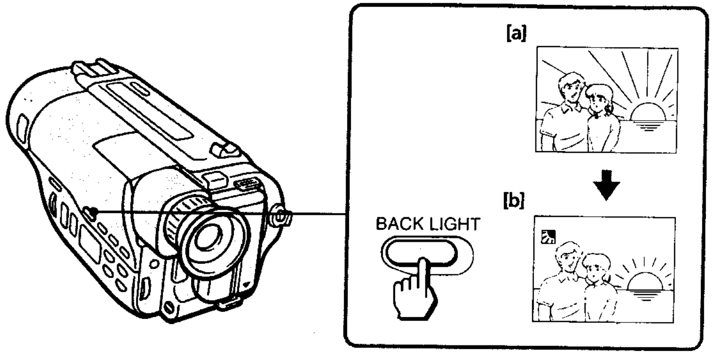
When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ▨ indicator appears in the viewfinder.

Videofilmación con iluminación de fondo

Cuando filme un motivo con la fuente de luz detrás de él o un motivo con un fondo iluminado, emplee la función BACK LIGHT.

Presione BACK LIGHT. El indicador ▨ aparecerá en el visor.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting

Be sure to release this adjustment condition by pressing BACK LIGHT again. The ▨ indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under the following conditions:

- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

When you press teh EXPOSURE button

The BACK LIGHT function is canceled.

[a] El motivo está demasiado oscuro debido a la iluminación de fondo.
[b] El motivo adquiere brillo con la compensación de iluminación de fondo.

Después de filmar

No se olvide de cancelar esta condición de ajuste presionando otra vez BACK LIGHT. El indicador ▨ desaparecerá. De otra forma, la imagen tendrá un brillo excesivo bajo condiciones de iluminación normal.

Esta función también será eficaz bajo las condiciones siguientes:

- En la nieve, por ejemplo, en una estación invernal.
- En la playa bajo un sol intenso.
- Cuando un motivo tenga una fuente de luz próxima o un espejo que refleje luz.
- Cuando un motivo blanco tenga un fondo blanco. Especialmente cuando filme a una persona con ropas brillantes de seda o fibra sintética, su rostro tenderá a oscurecerse si no emplea esta función.

Cuando presione la tecla EXPOSURE

La función BACK LIGHT se cancelará.

Adjusting the exposure

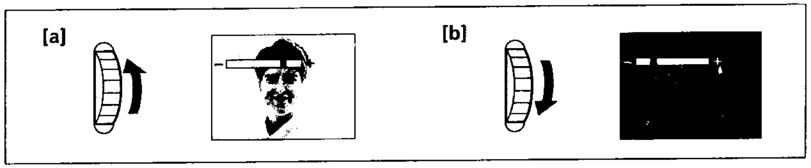
Ajuste de la exposición

When to adjust the exposure

When you shoot in a snowfield or on a beach in the mid-summer and the subject may become dark because of the extreme brightness, you can change the brightness of the picture. You can also use this function when the subject is too bright-subjects on stages, night views, etc.

Cuándo ajustar la exposición

Cuando filme en un campo nevado o una playa en pleno verano y el motivo se grabe demasiado oscuro debido a la cxcesiva claridad, podrá cambiar el brillo de la imagen. Esta función también podrá emplearse para un motivo demasiado brillante en un escenario, vistas nocturnas, etc.



[a] Turn the control dial up when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the control dial down when:
- Bright subject and dark background
- To record the darkness faithfully

[a] Gire el dial de control hacia arriba cuando:
- El fondo es demasiado brillante (contraluz)
- Iluminación insuficiente: la mayor parte de la imagen es oscura.

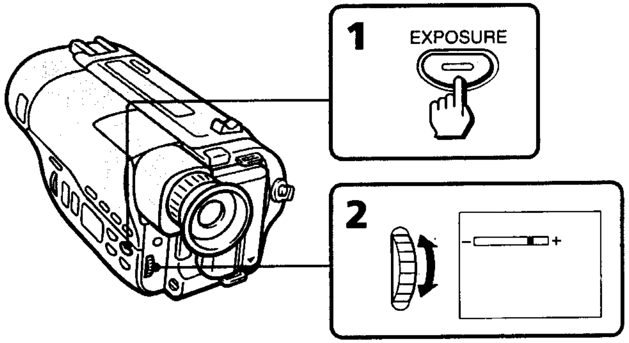
[b] Gire el dial de control hacia abajo cuando:
- El motivo es brillante y el fondo oscuro
- Desea videofilmar bien en la oscuridad

Adjusting the exposure

(1) Press EXPOSURE.
(2) Turn the control dial to adjust the brightness.

Ajuste de la exposición

(1) Presione EXPOSURE.
(2) Gire el dial de control para ajustar el brillo.



To return to automatic exposure mode

Press EXPOSURE again.

Para volver al modo de exposición automática

Presione nuevamente EXPOSURE.

Shooting with the sun behind you
If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark
We recommend you to use a video light (not supplied). To get the best colour, you must maintain a sufficient light level.

When you adjust the exposure manually
- BACK LIGHT does not appear.
- Manual adjustment of exposure returns to automatic exposure mode when you press the PROGRAM AE button.

Videofilme con el sol a su espalda
Si videofilma una escena con la fuente de iluminación detrás del motivo o con las siguientes condiciones, éste se grabará demasiado oscuro.
- El motivo está en interiores y existe una ventana detrás de él.
- La escena incluye fuentes de luz brillantes.
- Cuando videofilma una persona vestida de blanco o brillante frente a un fondo blanco. En este caso, el rostro se grabará demasiado oscuro.

Videofilmación en un lugar oscuro
Se recomienda utilizar una lámpara para vídeo (no suministrada). Para conseguir el mejor color, deberá mantener el nivel de iluminación suficiente.

Cuando ajuste manualmente la exposición
- no aparecerá BACK LIGHT.
- el ajuste manual de la exposición se volverá al ajuste automático si presiona la tecla PROGRAM AE.

Releasing the STEADY SHOT function (CCD-TR610E/TR810E only)

When you shoot, the 'Ꙋ' indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

You can release the Steady Shot function when you do not need to use the Steady Shot function. Do not use the Steady Shot function when shooting a stationary object with a tripod.

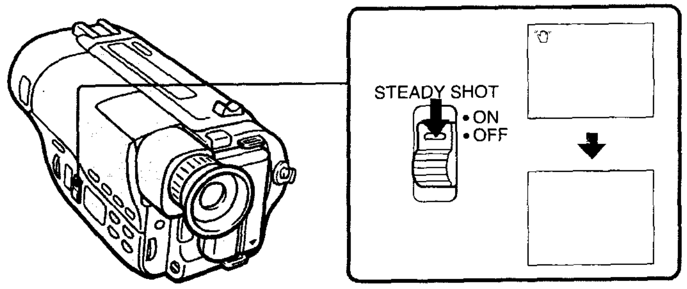
Set STEADY SHOT to OFF. The 'Ꙋ' indicator goes off.

Desactivación de la función STEADY SHOT (CCD-TR610E/TR810E solamente)

Cuando videofilme, en el visor aparecerá el indicador 'Ꙋ'. Este indicador señalará que la función de videofilmación estable está activada y la videocámara está compensando sus propias vibraciones.

Podrá desactivar la función de videofilmación estable cuando no la necesite. No emplee esta función cuando filme un objeto estacionario con un trípode.

Ponga STEADY SHOT en OFF. El indicador 'Ꙋ' desaparecerá.


STEADY SHOT
• ON
• OFF

To activate the Steady Shot function again

Set STEADY SHOT to ON. The 'Ꙋ' indicator appears in the viewfinder.

Notes on the Steady Shot function

- The Steady Shot function will not correct excessive camera-shake.
- When you switch the Steady Shot function on or off, the exposure may fluctuate.
- Steady Shot does not operate when you select the 16:9 FULL mode.

Para volver a activar la función de videofilmación estable

Ponga STEADY SHOT en ON. En el visor aparecerá el indicador "Ꙋ".

Notas sobre la función de videofilmación estable

- La función de videofilmación estable no podrá corregir sacudidas excesivas.
- Cuando active o desactive la función de videofilmación estable, es posible que la exposición varíe.
- Cuando seleccione el modo 16:9 FULL, la función de videofilmación estable no funcionará.

Superimposing a title

You can select one of eight preset titles. You can also select the language, position, and colour of titles in the menu system.

Selecting the language

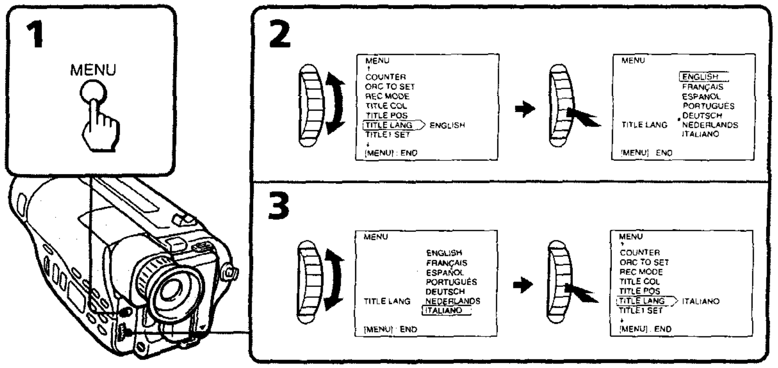
(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE LANG, then press the control dial. The language menu appears.
(3) Turn the control dial to select the desired language, then press the control dial.
(4) Press MENU to erase the menu display.

Superposición de un título

Usted podrá elegir un título entre los ochos títulos memorizados. También podrá seleccionar el idioma, la posición y el color del título en el sistema del menú.

Selección del idioma

(1) Mientras la videocámara esté en el modo de espera, presione MENU para visualizar el menú.
(2) Gire el dial de control para seleccionar TITLE LANG y presione el dial de control. Aparecerá el menú de idionas.
(3) Gire el dial de control para seleccionar el idioma deseado, y presione el dial de control.
(4) Presione MENU para borrar la visualización del menú.


1
MENU
2
MENU
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG ENGLISH
TITLE1 SET
[MENU] : END
MENU
ENGLISH
FRANÇAIS
ESPAÑOL
PORTUGUÉS
DEUTSCH
TITLE LANG
NEDERLANDS
ITALIANO
[MENU] END
3
MENU
ENGLISH
FRANÇAIS
ESPAÑOL
PORTUGUÉS
DEUTSCH
TITLE LANG
NEDERLANDS
ITALIANO
[MENU] END
MENU
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG ITALIANO
TITLE1 SET
[MENU] END

Using titles

To add the title from the beginning

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it flashes. When the desired title appears, wait for it to stop flashing.
Titles cycle as follows:
Original title 1 → Original title 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATULATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
After "THE END" the title indicator goes off once and returns to Original title 1 again.

(2) Press START/STOP to start recording.

(3) When you want to stop recording the title, press TITLE.

If you have not stored any original titles

The titles begin from "HELLO!".

Note on titles

The contents and the order of titles are different depending on the languages.

To add the title while you are recording

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears. Each time a new title appears, it flashes.

(2) When the desired title appears, wait for it to stop flashing, and press TITLE again to erase the title from the display.

(3) Press START/STOP to start recording.

(4) When you reach the point where you want to add the title, press TITLE.

(5) When you want to stop recording the title, press TITLE again.

Utilización del título

Para superponer el título desde el comienzo

(1) Mientras la videocámara esté en el modo de espera, presione repetidamente TITLE hasta que aparezca el título deseado.
Cada vez que aparezca un nuevo título, éste parpadeará. Cuando aparezca el título deseado, espere que deje de parpadear.
Los títulos aparecerán como sigue:
Título original 1 → Título original 2 → ¡HOLA! → ¡FELIZ CUMPLEAÑOS! → FELIZ NAVIDAD → ¡FELICIDADES! → NUESTRO BEBE → LA BODA → VACACIONES → FIN
Después de que el indicador del título "FIN" desaparezca, volverá a aparecer el título original 1.

(2) Presione START/STOP para iniciar la grabación.

(3) Cuando desee parar la grabación del título, presione TITLE.

Cuando no se haya almacenado ningún título original

El título comenzará a aparecer desde "¡HOLA!".

Nota sobre los títulos

El contenido y el orden de los títulos difieren en función de los idiomas.

Para superponer el título durante la grabación

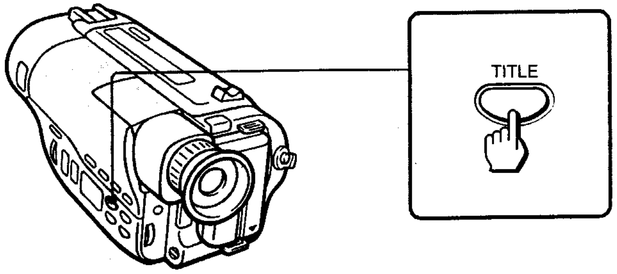
(1) Mientras la videocámara esté en el modo de espera, presione repetidamente TITLE hasta que aparezca el título deseado. Cada vez que aparezca un nuevo título, éste parpadeará.

(2) Cuando aparezca el título deseado, espere hasta que deje de parpadear, y vuelva a presionar TITLE para borrar el título de la pantalla.

(3) Presione START/STOP para comenzar la grabación.

(4) Cuando llegue al punto donde desee superponer el título, presione TITLE.

(5) Cuando desee detener la grabación del título, vuelva a presionar TITLE.



Notes on superimposing a title

- You cannot select a title while you are recording.
- FADER does not work while the title is displayed.
- A title, a date and time cannot be recorded at the same time.
- When fading in or out you cannot display a title.
- If you display the menu while superimposing a title, the title is not recorded while the menu is being displayed.

To select the colour of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the control dial to select TITLE COL and press the control dial to select it.
The colour menu appears.

(3) Turn the control dial to highlight a colour, and press the control dial to select it.
You can choose from the following 7 colors:
WHITE ←→ YELLLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE

(4) Press MENU to erase the menu display.

Notas sobre la superposición de un título

- Usted no podrá seleccionar el título durante la grabación.
- FADER no se activará mientras esté visualizándose un título.
- El título, la fecha y la hora no podrán grabarse al mismo tiempo.
- Durante el aumento gradual o el desvanecimiento, no podrá visualizar el título.
- Si visualiza el menú durante la superposición de un título, el mismo no se grabará mientras aparezca el menú.

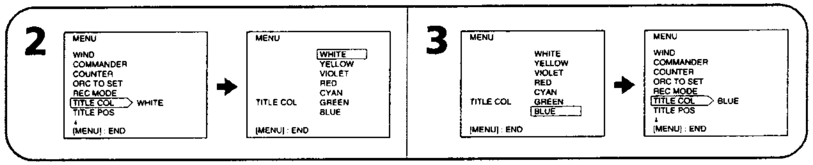
Para seleccionar el color del título

(1) Mientras la videocámara esté en el modo de espera, presione MENU para visualizar el menú.

(2) Gire el dial de control para seleccionar TITLE COL y presione dicho dial para elegirlo.
Aparecerá el menú de color.

(3) Gire el dial de control para resaltar un color, y presione el dial para seleccionarlo.
Usted podrá elegir uno de los siguientes 7 colores:
WHITE (blanco) ←→ YELLOW (amarillo) ←→ VIOLET (violeta) ←→ RED (rojo) ←→ CYAN (azul-verde) ←→ GREEN (verde) ←→ BLUE (azul)

(4) Presione MENU para borrar la visualización del menú.

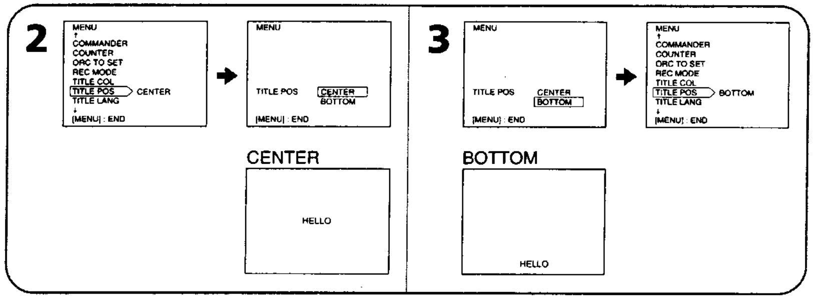


To select the position of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu in the viewfinder.
(2) Turn the control dial to select TITLE POS and press the control dial to select it.
The position menu appears.
(3) Turn the control dial to highlight CENTER or BOTTOM, and press the control dial to select it.
(4) Press MENU to erase the menu display.

Para seleccionar la posición del título

(1) Mientras la videocámara esté en el modo de espera, presione MENU para visualizar el menú en el visor.
(2) Gire el dial de control para seleccionar TITLE POS y presione el dial para elegirlo.
Aparecerá el menú de posición.
(3) Gire el dial de control para resaltar CENTER o BOTTOM, y presione el dial para seleccionarlo.
(4) Presione MENU para borrar la visualización del menú.


2
MENU
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
CENTER
TITLE LANG
[MENU] : END
MENU
TITLE POS
CENTER
BOTTOM
[MENU] : END
CENTER
HELLO
3
MENU
TITLE POS
CENTER
BOTTOM
[MENU] : END
MENU
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
BOTTOM
TITLE LANG
[MENU] : END
BOTTOM
HELLO

Making your own original titles

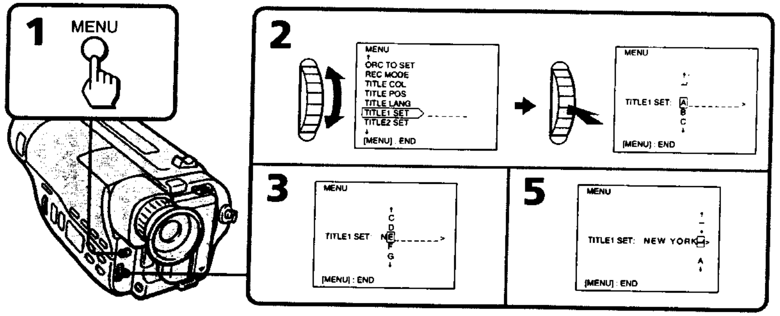
Confección de sus títulos originales

You can make up to two titles and store them in the camcorder. Eject the cassette before you begin. Your title can have up to 22 letters.

(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE 1 SET or TITLE 2 SET and press the control dial to select it. The letter entry menu appears.
(3) Turn the control dial to highlight a letter, and press the control dial to select it.
(4) Repeat step 3 until you finish the title.
(5) When you are finished, turn the control dial to highlight ↵ and press control dial to select it.
The title is stored.
(6) Press MENU to erase the menu display.

Usted podrá confeccionar dos títulos y almacenarlos en la videocámara. Extraiga el cassette antes de comenzar. El título podrá ser de hasta 22 letras.

(1) Mientras la videocámara esté en el modo de espera, presione MENU para visualizar el menú.
(2) Gire el dial de control para seleccionar TITLE 1 SET o TITLE 2 SET, y presione el dial para seleccionarlo. Aparecerá el menú de introducción de letras.
(3) Gire el dial de control para resaltar una letra, y presione el dial para elegirla.
(4) Repita el paso 3 hasta que termine de elegir todas las letras del título.
(5) Cuando termine, gire el dial para resaltar ↵ y presione el dial para seleccionarlo.
El título se almacenará.
(6) Presione MENU para borrar la visualización del menú.


1
MENU
2
MENU
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
TITLE1 SET
TITLE2 SET
[MENU] : END
MENU
TITLE1 SET:
A
B
C
[MENU] : END
3
MENU
TITLE1 SET:
NE
C
D
F
G
[MENU] : END
5
MENU
TITLE1 SET: NEW YORK
A
[MENU] : END

To edit a title you have stored

In step 2, select TITLE 1 SET or TITLE 2 SET, whichever title you want to edit is stored in. Then change the title.

Instead of selecting ↵ in step 5 to store the title

You can do one of the following:
- Enter 22 characters.
- Press MENU.

If you do nothing more than 5 minutes while a cassette is in the camcorder

The power goes off automatically. Turn STANDBY down once, turn it again up and proceed from step 1.

Para cambiar un título almacenado

En el paso 2, seleccione TITLE 1 SET o TITLE 2 SET en la que esté almacenado el título que desee cambiar, y después cámbielo.

En lugar de seleccionar ↵ en el paso 5 para almacenar el título

Podrá realizar uno de los dos procedimientos siguientes:
- Introducir 22 letras.
- Presionar MENU.

Si pasan 5 minutos sin hacer ningún procedimiento mientras la videocámara tenga un cassette insertado

La alimentación se desconectará automáticamente. Gire una vez STANDBY hacia abajo y vuelva a girarlo hacia arriba, y comience desde el paso 1.

When you enter 22 letters in step 4
The title is stored automatically. (You do not need to got to step 5.)

To delete a title
At the leftmost character position, select ↵ and press the control dial. Do not erase the title by selecting empty spaces. If you do so, a title full of empty spaces is stored.

Cuando introduzca 22 letras en el paso 4
El título se almacenará automáticamente. (No es necesario pasar al paso 5.)

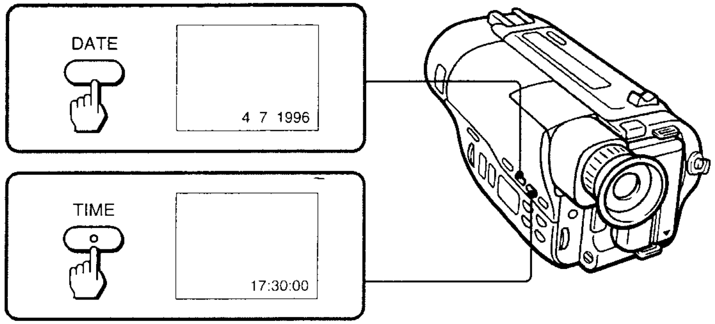
Para borrar un título
En la posición de la letra del extremo izquierdo, seleccione ↵ y presione el dial de control. No borre el título seleccionando el espacio. Si lo hace, se almacenará un título compuesto de espacios.

Recording with the date or time

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.
The clock is already set at the factory, to London time for United Kingdom and to Paris time for the other European countries. You can reset the clock in the menu system.

Grabación con la fecha o la hora

Antes de comenzar la grabación o durante la grabación, presione DATE o TIME. Con la imagen podrá grabar la fecha o la hora visualizada en el visor. La fecha y la hora no podrán grabarse al mismo tiempo. Exceptuando el indicador de la fecha o la hora, ningún otro indicador del visor se grabará.
El reloj ya ha sido ajustado en fábrica a la hora de Londres para el Reino Unido y a la de París para los demás países europeos. El reloj podrá reajustarse en el sistema del menú.



To stop recording with the date or time

Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Para parar la grabación con la fecha o la hora

Presione otra vez DATE o TIME. El indicador de la fecha o la hora desaparecerá. La grabación continuará.

Re-recording a picture in the middle of a recorded tape (CCD-TR760E/TR810E only)

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. If the RC time code appears in the viewfinder, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or – (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion **[b]**. The camcorder enters Standby mode again.

(2) Press COUNTER RESET. The counter resets to zero.

(3) Keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion **[a]**.

(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.

(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.

Regrabación de una imagen en medio de una cinta grabada (CCD-TR760E/TR810E solamente)

Usted podrá insertar una escena en medio de una cinta grabada ajustando el punto de comienzo y el de finalización. La grabación previamente realizada se borrará. Cuando el código de tiempo RC aparezca en el visor, ponga COUNTER en NORMAL en el sistema del menú para visualizar el contador de la cinta.

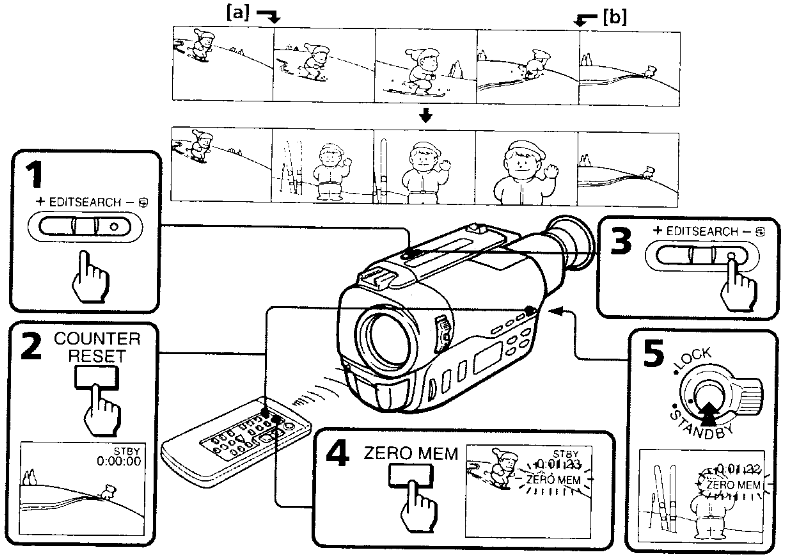
(1) Mientras la videocámara esté en el modo de espera, mantenga presionado el lado + (reproducción en sentido progresivo) o – (reproducción en sentido regresivo) de EDITSEARCH, y suéltelo cuando desee finalizar la inserción **[b]**. La videocámara volverá a pasar al modo de espera.

(2) Presione COUNTER RESET. El contador se ajustará a cero.

(3) Mantenga presionado el lado – de EDITSEARCH y suéltelo en el punto en el que desee iniciar la inserción **[a]**.

(4) Presione ZERO MEM del telemando. Parpadeará el indicador ZERO MEM.

(5) Presione START/STOP para comenzar la grabación. La grabación se parará automáticamente en el punto cero del contador.



To change the end point

Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.

Note on re-recording

The picture and the sound may be distorted at the end of the inserted portion when it is played back.

Para cambiar el punto de finalización

Presione ZERO MEM para borrar el indicador ZERO MEM, y después repita los pasos 2 a 5.

Nota sobre la regrabación

Es posible que las imágenes y el sonido se distorsionen en el punto de finalización de la inserción cuando los reproduzca.

Selecting the START/STOP mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) Set the START/STOP MODE switch to the desired mode.
  ⩡ : Recording starts when you press START/STOP, and stops when you press it again (normal mode).
  ⍊ : The camcorder records only while you press down START/STOP.
  5 SEC: When you press START/STOP, the camcorder records for 5 seconds and then stops automatically.

(2) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5 SEC, five dots appear in the viewfinder. The dots disappear at a rate of one per second. When five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.

If you select ⍊, the camcorder records as long as you hold down START/STOP.

Selección del modo START/STOP

Esta videocámara dispone de dos modos además del modo normal de inicio/parada. Con estos modos podrá obtener una serie de tomas rápidas que resultará en un vídeo vívido.

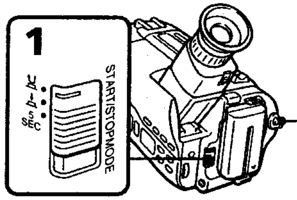
(1) Ponga el selector START/STOP MODE en el modo deseado.
  ⩡ : La grabación se iniciará cuando presione START/STOP, y se parará cuando vuelva a presionarlo (modo normal).
  ⍊ : La videocámara grabará sólo mientras mantenga presionado START/STOP.
  5 SEC: Cuando presione START/STOP, la videocámara grabará durante 5 segundos y se parará automáticamente.

(2) Gire STANDBY hacia arriba y presione START/STOP. Se iniciará la grabación.

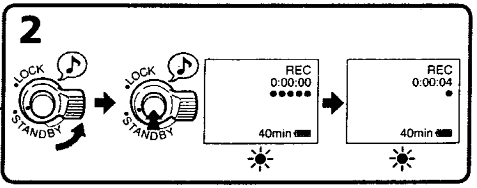
Si selecciona 5 SEC, en el visor aparecerán 5 puntos. Los puntos desaparecerán de a uno por segundo. Cuando pasen 5 segundos y todos los puntos hayan desaparecido, la videocámara entrará automáticamente en el modo de espera.

Si selecciona ⍊; la videocámara grabará mientras presione START/STOP.

1



2



To extend the recording time in 5 SEC mode

Press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you pressed START/STOP.

To return to normal recording

Set the START/STOP MODE switch to ⩡. If you set the switch while recording, recording continues.

Note on 5-SEC and ⍊ mode

You cannot use FADER if you select 5 SEC or ⍊.

Para prolongar el tiempo de grabación en el modo 5 SEC

Vuelva a presionar START/STOP antes de que desaparezcan todos los puntos. La grabación continuará durante unos 5 segundos desde el momento que presione START/STOP.

Para volver a la grabación normal

Ponga el selector START/STOP MODE en ⩡. Si lo pone en esta posición durante la grabación, la misma continuará.

Nota sobre los modos de 5-SEC y ⍊

Cuando seleccione 5 SEC o ⍊, no podrá utilizar FADER.

Checking the tape condition before recording (ORC)

Use this feature to check the tape condition before recording, so that you can get the best possible picture.

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the control dial to highlight ORC TO SET and press the control dial to select it. "START/STOP KEY" starts flashing.

(3) Press START/STOP.
The ORC indicator starts flashing. The camcorder takes about 5 seconds to check the condition of the tape head and the cassette. The ORC indicator disappears.

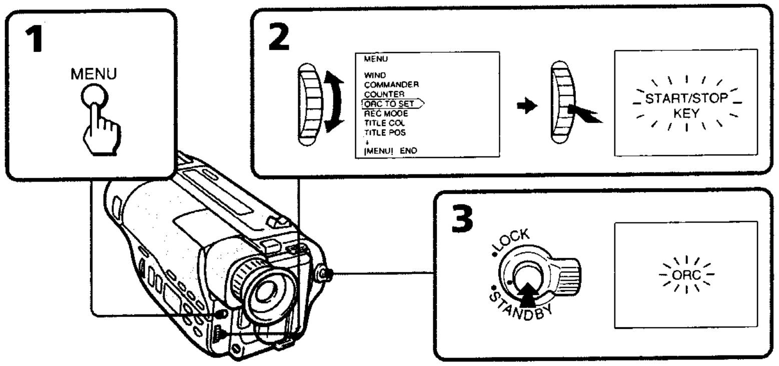
Comprobación de la condición de la cinta antes de la grabación (ORC)

Emplee esta función para ver la condición de la cinta antes de la grabación, de forma que pueda obtener las mejores imágenes posibles.

(1) Mientras la videocámara esté en el modo de espera, presione MENU para visualizar el menú.

(2) Gire el dial de control para resaltar ORC TO SET y presione el dial para seleccionarlo. "START/STOP KEY" comenzará a parpadear.

(3) Presione START/STOP.
El indicador ORC comenzará a parpadear. La videocámara tardará unos 5 minutos en comprobar la condición de la cabeza de la cinta y el cassette. El indicador ORC desaparecerá.



If the cassette has been ejected

Every time you eject the cassette, ORC is canceled. Set ORC again.

To check if you have performed ORC

Perform step 1 and step 2 above. If "ORC ON" is displayed, the tape condition has been checked.

When the tab on the cassette exposes the red mark

You can not use ORC.

If you set ORC on the tape already recorded

A 0.1 second unrecorded part is automatically created on the tape. However, if you continue recording over the part, the unrecorded part on the tape is canceled.

Si el cassette se ha expulsado

Cada vez que lo expulse, ORC se cancelará. Vuelva a activar ORC.

Para ver si se ha activado ORC

Realice los pasos 1 y 2 anteriores. Si se visualiza "ORC ON", la condición de la cinta se habrá comprobado.

Cuando la lengüeta del cassette esté con la marca roja al descubierto

No podrá emplear ORC.

Si ajusta la condición de la cinta (ORC) en una cinta previamente grabada

En la cinta se creará automáticamente una parte sin grabación de 0,1 segundo. Sin embargo, si continua la grabación sobre esta parte, la misma se cancelará.

Searching the boundaries of recorded date (CCD-TR760E/TR810E only)

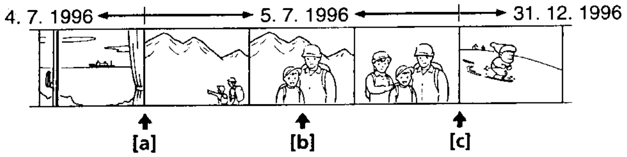
You can search for the boundary between recording dates using the Date Code automatically recorded on the tape.
There are two modes:

- Searching for the beginning of a specific date, and playing back from there (**Date Search**)
- Searching for the beginning of all days, one after another, playing back about 10 seconds of each (**Date Scan**)

Búsqueda de los límites de las fechas grabadas (CCD-TR760E/TR810E solamente)

Usted podrá buscar el límite de las fechas de grabación utilizando el código de la fecha grabado automáticamente en la cinta.
Existen los dos modos siguientes:

- Búsqueda del comienzo de una fecha específica y reproducción desde tal punto (**Búsqueda de fechas**)
- Búsqueda del comienzo de todas las fechas uno detrás de otro reproduciendo unos 10 segundos de cada uno (**Exploración de fechas**)



Each time you press DATE SEARCH, the mode changes as follows:

Date Search → Date Scan → nothing

Cada vez que presione DATE SEARCH, el modo cambiará de la forma siguiente:

Búsqueda de fechas → Exploración de fechas → Ninguno

To search for the beginning of a specific date

(1) Set the POWER switch to PLAYER. The tape transport buttons light up.

(2) Press DATE SEARCH on the Remote Commander.

(3) When the current position is **[b]**, press ◀◀ to search towards **[a]** or press ▶▶ to search towards **[c]**.

To scan the beginning of all days

(1) Set the POWER switch to PLAYER.

(2) Press DATE SEARCH on the Remote Commander twice.

(3) Press ◀◀ or ▶▶. Date Scan starts.

Para buscar el comienzo de una fecha específica

(1) Ponga el selector POWER en PLAYER. Las teclas de transporte de la cinta se encenderán.

(2) Presione DATE SEARCH del telemando.

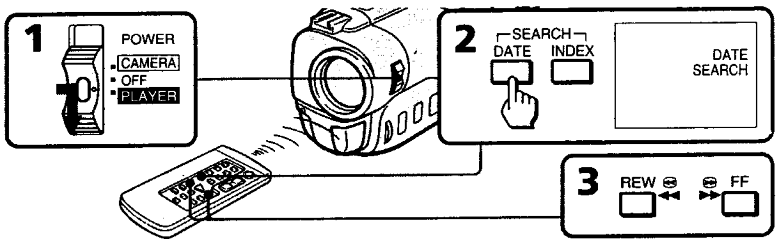
(3) Cuando el punto actual es **[b]**, presione ◀◀ para buscar hacia **[a]** o ▶▶ para buscar hacia **[c]**.

Para explorar el comienzo de todas las fechas

(1) Ponga el selector POWER en PLAYER.

(2) Presione dos veces DATE SEARCH del telemando.

(3) Presione ◀◀ o ▶▶. Se iniciará la exploración de fechas.



To stop searching or scanning
Press one of the following tape transport buttons: ▷, □, ◀◀ or ▶▶.

To view pictures during searching or scanning
Press ▷ and then press ◀◀ or ▶▶.

Notes on Date Search and Date Scan mode

- If a day's recording is not longer than 2 minutes, the camcorder may not accurately find its boundaries.
- Date Search and Date Scan do not function on a tape recorded by a camcorder without the Data Code function. Your camcorder has the Data Code function.

Para parar la búsqueda o la exploración
Presione una de las siguientes teclas de transporte de la cinta: ▷, □, ◀◀ o ▶▶.

Para ver las imágenes durante la búsqueda o la exploración
Presione ▷ y después presione ◀◀ o ▶▶.

Notas sobre los modos de búsqueda y exploración de fechas

- Si la grabación de un día no dura más de 2 minutos, es posible que la videocámara no detecte los límites con precisión.
- La búsqueda y la exploración de fechas no funcionarán con una cinta grabada en otra videocámara carente de la función de código de datos. Esta videocámara dispone de la función de código de datos.

Returning to a pre-registered position (CCD-TR760E/TR810E only)

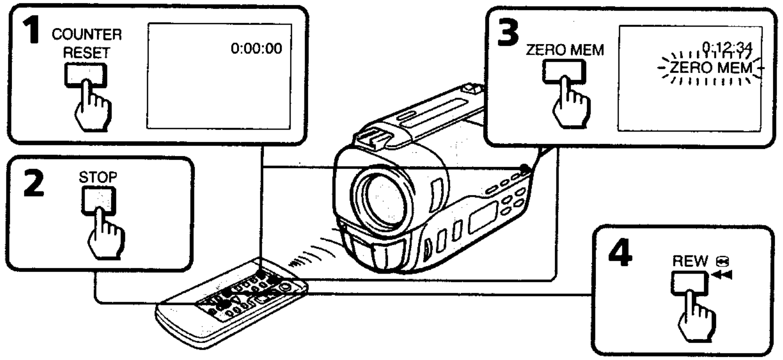
Vuelta al punto previamente registrado (CCD-TR760E/TR810E solamente)

Using the Remote Commander, you can easily go back to the desired point on a tape after playback. Use the tape counter. If the RC time code appears in the viewfinder, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) During playback, press COUNTER RESET at the point you later want to locate. The counter shows "0:00:00" in the viewfinder.
(2) Press □ when you want to stop playback.
(3) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes in the viewfinder.
(4) Press ◀◀ to rewind or press ▶▶ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero.

Utilizando el telemando, podrá volver fácilmente al punto deseado después de la reproducción. Emplee el contador de la cinta. Cuando aparezca el código de tiempo RC en el visor, ponga COUNTER en NORMAL en el sistema del menú para visualizar el contador de la cinta.

(1) Durante la reproducción, presione COUNTER RESET en el punto que desee localizar más tarde. El contador mostrará "0:00:00" en el visor.
(2) Presione □ cuando desee parar la reproducción.
(3) Presione ZERO MEM del telemando. En el visor parpadeará el indicador ZERO MEM.
(4) Presione ◀◀ para rebobinar o ▶▶ para avanzar la cinta hasta el punto cero del contador. La cinta se parará automáticamente cuando el contador llegue aproximadamente a cero.



Notes on the tape counter

- Something must be recorded on the tape in order for the tape counter to function. Tape counter does not work on a blank tape.
- There may be a discrepancy of several seconds from the actual time.

Notas sobre el contador de la cinta

- Para que el contador funcione, deberá tener algo grabado en la cinta. El contador no trabajará en una cinta en blanco.
- Es posible que exista una diferencia de varios segundos entre el contador y el tiempo real.

Notes on ZERO MEM

- When you press ZERO MEM, the counter's zero point is memorized. Press ZERO MEM again before rewinding to cancel the memory.
- This function is canceled automatically once the tape is rewound or advanced to the point you pre-registered.
- ZERO MEM does not function during recording or playing back.

Notas sobre ZERO MEM

- Cuando presione ZERO MEM, se memorizará el punto cero del contador. Para cancelar la memorización, vuelva a presionar ZERO MEM antes del rebobinado.
- Esta función se cancelará automáticamente cuando la cinta se rebobine o avance hasta el punto previamente registrado.
- ZERO MEM no funcionará durante la grabación ni la reproducción.

Locating the marking position (CCD-TR760E/TR810E only)

You can locate the beginning of a desired programme easily by marking an index signal during recording or playback and searching for it later.

Marking an index signal

You can mark an index signal during recording or playback.

When marking at the beginning of recording or playback

Press INDEX MARK on the Remote Commander in recording standby or playback pause mode. The INDEX MARK indicator appears in the viewfinder with the MARK indicator flashing. When recording or playback starts, the MARK indicator stops flashing. This shows that the index signal is being marked. Then the INDEX MARK indicator will disappear.

Localización del punto marcado (CCD-TR760E/TR810E solamente)

Usted podrá localizar fácilmente el comienzo del programa deseado marcando una señal de índice durante la grabación o la reproducción y localizándola más tarde.

Marcación de una señal de índice

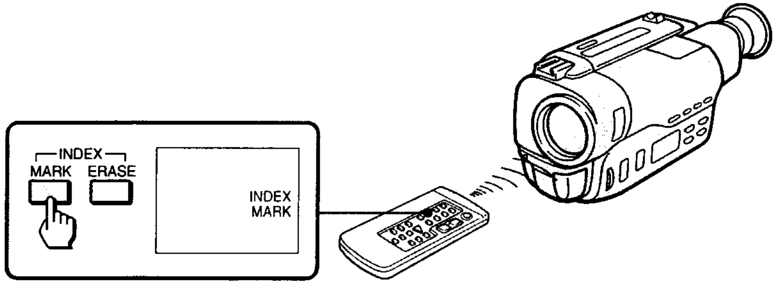
Usted podrá marcar una señal de índice durante la grabación o la reproducción.

Marcación en el comienzo de la grabación o la reproducción

Presione INDEX MARK del telemando en el modo de grabación en espera o reproducción en pausa. En el visor aparecerá el indicador INDEX MARK con el indicador MARK parpadeando. Cuando comience la grabación o la reproducción, el indicador MARK dejará de parpadear. Esto indica que la señal de índice se está marcando. Después, el indicador INDEX MARK desaparecerá.

When marking during recording or playback

Press INDEX MARK on the Remote Commander at the point you want to locate later.



Notes on marking

- Make sure you mark index signals at more than two-minute intervals. Otherwise, you may not be able to search for them correctly.
- If you stop recording or playback while the index signal is being marked (the INDEX MARK indicator lights in the viewfinder), the search may not be completed correctly.
- If you mark an index signal on the tape with the Data Code or RC time code recorded, the Data Code will be erased at the point on which the index signal is marked. When playing back this tape, the camcorder keeps displaying the Data Code immediately before the erased one. If the Data Code does not exist for more than 30 seconds the Data Code displays bars (--).
- A black band appears when you mark index signal during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.
- You cannot mark an index signal on a tape with the red mark on the cassette exposed.
- You cannot mark an index signal on an NTSC-recorded tape.
- You cannot mark an index signal when you are using 5 SEC, ⊥ or fading out while the POWER switch is set to CAMERA.

Marcación durante la grabación o la reproducción

Presione INDEX MARK del telemando en el punto que desee localizar más tarde.

Notas sobre la marcación

- Asegúrese de marcar señales de índice con un intervalo de más de dos minutos. De lo contrario, es posible que no pueda localizarlas correctamente.
- Si para la grabación o la reproducción mientras esté marcándose una señal de índice (el indicador INDEX MARK aparece en el visor), es posible que la búsqueda no se realice correctamente.
- Si marca una señal de índice en una cinta con código de datos o código de tiempo RC grabado, el código se borrará en el punto donde se marque la señal de índice. Cuando reproduzca esta cinta, se visualizará el código de datos inmediatamente anterior al borrado. Si el código de datos no existe durante más de 30 segundos, se visualizarán las barras (--).
- Aparecerá una franja negra cuando marque una señal de índice durante la reproducción, y el sonido no se oirá. Esto no afectará la imagen y el sonido previamente grabados.
- Usted no podrá marcar una señal de índice cuando el cassette tenga la marca roja al descubierto.
- Usted no podrá marcar una señal de índice en una cinta grabada con el sistema NTSC.
- Usted no podrá marcar una señal de índice cuando esté activada 5 SEC, ⊥ o el desvanecimiento con el selector POWER en CAMERA.

Scanning the beginning of each marking position — index scan

Use the Remote Commander. To view the picture on a TV, press DISPLAY.

(1) Press INDEX on the Remote Commander during normal playback or in stop mode.

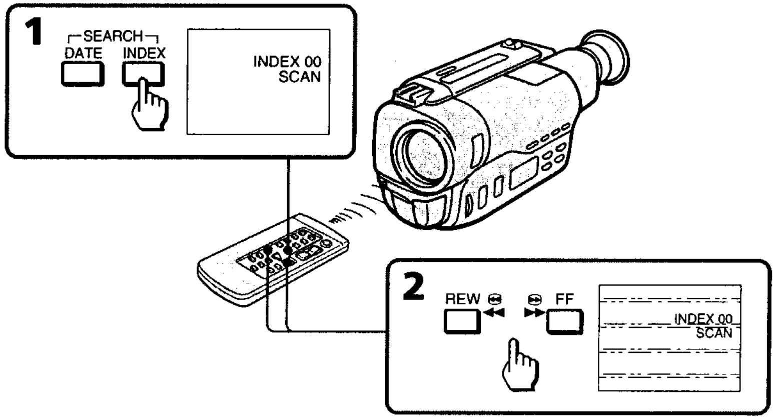
(2) Press ◀◀ or ▶▶. The tape rewinds or advances rapidly and plays back for approximately 10 seconds form the point on which the index signal was marked. If you want to continue playback, press ▷. When you do not press any button, the tape is automatically scanned to the next programme.

Exploración del punto marcado — Exploración con señales de índice

Utilice el telemando. Para ver las imágenes en el televisor, presione DISPLAY.

(1) Presione INDEX del telemando durante la reproducción normal o en el modo de parada.

(2) Presione ◀◀ o ▶▶. La cinta se rebobinará o avanzará rápidamente y se reproducirá durante unos 10 segundos desde el punto donde se haya marcado una señal de índice. Si desea continuar la reproducción, presione ▷. Si no presiona ninguna tecla, la videocámara explorará automáticamente el siguiente programa.



To cancel index scan mode

Press ▷. Normal playback resumes.

Para cancelar el modo de exploración con señales de índice

Presione ▷. Se reanudará la reproducción normal.

Locating the marking position (CCD-TR760E/TR810E only)

Localización del punto marcado (CCD-TR760E/TR810E solamente)

Locating the desired marking position — index search

(1) Press INDEX on the Remote Commander during stop or playback mode.

(2) Press INDEX repeatedly until the index number of the desired programme is displayed in the viewfinder.

(3) Press ◀◀ or ▶▶. Playback starts from the beginning of the desired programme.

[a] the current position
[b] the INDEX number

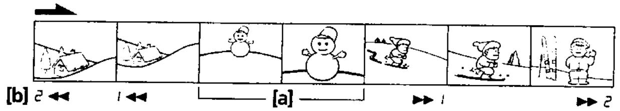
Localización de un punto marcado — Búsqueda con señales de índice

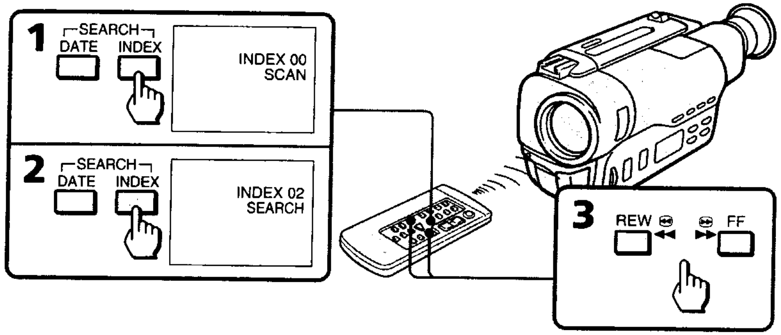
(1) Presione INDEX del telemando durante el modo de parada o reproducción.

(2) Presione repetidamente INDEX hasta que en el visor aparezca el número de índice del programa deseado.

(3) Presione ◀◀ o ▶▶. La reproducción se iniciará desde el comienzo del programa deseado.

[a] posición actual
[b] número de índice





To stop index search mode

Press ▷. Normal playback resumes.

Note on the index number

The index number (1, 2, etc.) indicates the distance from the point you are now viewing **[a]**, regardless of the direction.

Para detener el modo de búsqueda con señales de índice

Presione ▷. Se reanudará la reproducción normal.

Nota sobre el número de índice

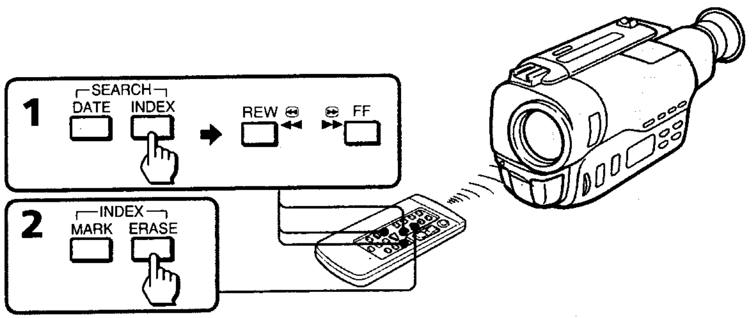
El número de índice (1, 2, etc.) indica la distancia desde el punto que está viéndose **[a]**, independientemente del sentido.

Erasing an index signal

(1) Locate the index signal to be erased using the index scan or index search function.
(2) Press INDEX ERASE on the Remote Commander within 2 to 10 seconds while the desired programme plays back. After the index signal is erased, the camcorder returns to index scan or index search mode, whichever was used in step 1.

Borrado de una señal de índice

(1) Localice la señal de índice que desee borrar con la función de exploración o la búsqueda con señales de índice.
(2) Presione INDEX ERASE del telemando durante 2 a 10 segundos mientras esté reproduciéndose el programa deseado. Después de que la señal de índice se haya borrado, la videocámara volverá al modo de exploración o búsqueda con señales de índice, el que haya activado en el paso 1.



Notes on erasing
- Press INDEX ERASE more than 2 seconds after the playback of the desired programme begins.
- You cannot erase the index signal on a tape with the red mark on the cassette exposed.
- While the index signal is being erased, the sound may not be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.
- The camcorder can detect index signals marked with VCRs, but may not erase them. VCRs with an index function can detect index signals marked with this camcorder but may not erase them.
- An index signal may be erased when making PCM after recording on another VCR in the portion where the index signal is marked.

Note on Data Code
When an index signal is erased, Data Code on the same portion of the tape is also erased.

Notas sobre el borrado
- Presione INDEX ERASE durante más de 2 segundos después de que haya comenzado la reproducción del programa deseado.
- Usted no podrá borrar señales de índice cuando el cassette tenga la marca roja al descubierto.
- Mientras esté borrándose una señal de índice, el sonido puede no oírse y aparecerá una franja negra en la parte inferior de la imagen. Esto no afectará el sonido o la imagen grabada.
- La videocámara podrá detectar señales de índice marcadas en videograbadoras; pero no podrá borrarlas, Las videograbadoras provistas de función de índice podrán detectar las señales de índice marcadas en esta videocámara, pero no podrán borrarlas.
- Cuando realice PCM con otra videograbadora en una parte previamente grabada con señales de índice, éstas pueden borrarse.

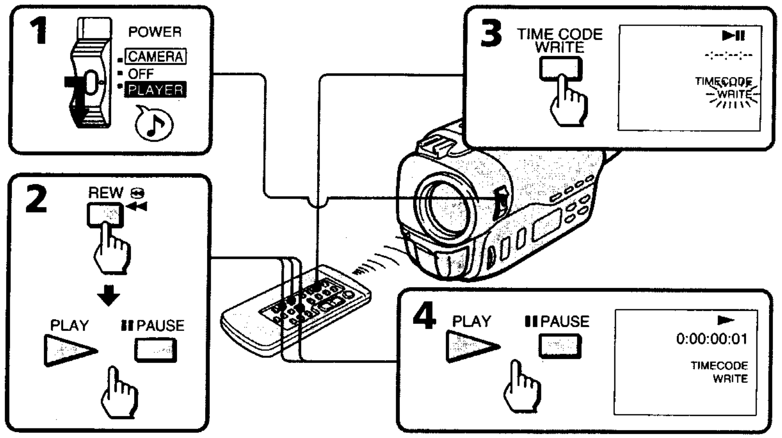
Nota sobre el código de datos
Cuando una señal de índice se borre, el código de datos en el mismo punto también se borrará.

Writing the RC Time code on a recorded tape (CCD-TR760E/TR810E only)

You can write the RC time code on a recorded tape. Use the Remote Commander.
(1) While pressing the small green button on the POWER switch, set it to PLAYER.
(2) Rewind the tape to the beginning and set the camcorder to playback pause mode.
(3) Press TIME CODE WRITE on the Remote Commander. The TIME CODE WRITE indicator appears in the viewfinder with the WRITE indicator flashing.
(4) Press ▷ or II to start playback. The WRITE indicator stops flashing and the RC time code writing starts from 0:00:00:00.

Escritura del código de tiempo RC en una cinta grabada (CCD-TR760E/TR810E solamente)

Usted podrá escribir el código de tiempo RC en una cinta grabada. Utilice el telemando.
(1) Manteniendo presionado el pequeño botón verde en el selector POWER, póngalo en PLAYER.
(2) Rebobine la cinta hasta su comienzo y ponga la videocámara en el modo de reproducción en pausa.
(3) Presione TIME CODE WRITE del telemando. En el visor aparecerá el indicador TIME CODE WRITE y parpadeará el indicador WRITE.
(4) Presione ▷ o II para iniciar la reproducción. El indicador WRITE dejará de parpadear y el código de tiempo RC se escribirá desde 0:00:00:00.



To stop writing the RC time code

Press □ (or any tape transport button).

Para detener la escritura del código de tiempo RC

Presione □ (o cualquier tecla de transporte de la cinta).

To write the RC time code from the end of the RC time code recorded portion

Rewind the tape to the portion on which the RC time code has been written and set the camcorder to playback pause mode. Then follow steps 3 and 4 above. The RC time code is written continuously.

Notes on writing the RC time code

- The RC time code writing stops when:
  - you press TIME CODE WRITE again before starting playback.
  - you press INDEX or DATE before starting playback.
  - you change from playback mode to another mode.
- When you are writing the RC time code from the middle of a tape without the time code written, writing starts several frames before the current picture.
- If you write the RC time code on a recorded tape, the Data Code is erased.
- You can mark the RC time code on a tape recorded both in LP mode and SP mode, the RC time code written in LP mode, however, may not be read correctly.
- You cannot mark the RC time code on an NTSC-recorded tape.
- You cannot write the RC time code on a tape with the red mark on the cassette exposed.
- A black band appears when you mark the RC time code during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.

Note on --:--:--:-- indicator

The --:--:--:-- indicator appears during playback if:

- nothing is recorded.
- the RC time code is unreadable because of the damage of the tape or because of the noise.
- you recorded using another VCR without RC time code function.

Para escribir el código de tiempo RC a partir del punto final de dicho código grabado

Rebobine la cinta hasta la parte en la que se haya escrito el código de tiempo RC y ponga la videocámara en el modo de reproducción en pausa. Después, realice los pasos 3 y 4 anteriores. El código de tiempo RC se escribirá continuamente.

Notas sobre la escritura del código de tiempo RC

- La escritura del código de tiempo RC se parara cuando:
  - presione nuevamente TIME CODE WRITE antes de iniciar la reproducción.
  - presione INDEX o DATE antes de iniciar la reproducción.
  - cambie del modo de reproducción a otro modo.
- Si escribe el código de tiempo RC desde el medio de una cinta sin dicho código, la escritura se iniciará a partir de algunos fotogramas antes de la imagen actual.
- Si escribe el código de tiempo RC en una cinta grabada, el código de datos se borrará.
- Usted podrá marcar el código de tiempo RC en una cinta grabada tanto en el modo LP como el SP, sin embargo, es posible que el código de tiempo RC escrito en el modo LP no pueda leerse correctamente.
- Usted no podrá escribir el código de tiempo RC en una cinta grabada en el sistema NTSC.
- Usted no podrá escribir el código de tiempo RC cuando el cassette tenga la marca roja al descubierto.
- Cuando marque el código de tiempo RC durante la reproducción, aparecerá una banda negra y el sonido no se oirá. Esto no afectará la imagen y el sonido ya grabado.

Nota sobre el indicador --:--:--:--

El indicador --:--:--:-- aparecerá durante la reproducción si:

- no hay nada grabado.
- el código de tiempo RC no puede leerse debido al daño o ruido en la cinta.
- la cinta se ha grabado en otra videograbadora sin función de código de tiempo RC.

Editing onto another tape

You can create your own video programme by editing with any other **8** 8 mm, **Hi8** Hi8, **VHS** VHS, **SVHS** S-VHS, **VHSC** VHSC, **SVHSC** S-VHSC or **β** Betamax VCR that has video/audio inputs.

Before editing

Connect the camcorder to the VCR as described in "Connections for playback" on page 21.
Set the input selector on the VCR to LINE, if available.

(1) While pressing the small green button on the POWER switch, slide it to PLAYER.
(2) Set EDIT to ON in the menu system.

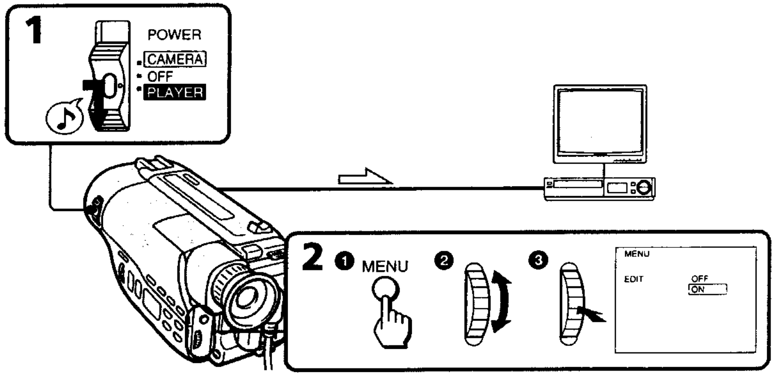
Edición en otra cinta

Usted podrá crear su propio programa de vídeo editando con cualquier otra videograbadora de formato de 8mm **8**, 8 mm de Hi8 **Hi8**, VHS **VHS**, S-VHS **SVHS**, VHSC **VHSC**, S-VHSC **SVHSC** o Betamax **β** que disponga de entradas de vídeo/audio.

Antes de la edición

Conecte la videocámara a la videograbadora como se ha descrito en "Conexiones para la reproducción" de la página 21.
Ponga el selector de entrada de la videograbadora en LINE, si tuviese esa posición.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, póngalo en PLAYER.
(2) Ponga EDIT en ON en el sistema del menú.



⇨ : Signal flow/Flujo de la señal

Starting editing

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert your recorded tape into the camcorder.
(2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing, then press ❚❚ to set the camcorder in playback pause mode.
(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.
(4) Press ❚❚ on the camcorder and VCR simultaneously to start editing.

To edit more scenes

Repeat steps 2 to 4.

To stop editing

Press □ on both the camcorder and the VCR.

Note on the DISPLAY function

If you have displayed the viewfinder screen indicators on the TV, erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Inicio de la edición

(1) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora y la cinta grabada en la videocámara.
(2) Reproduzca la cinta grabada en la videocámara hasta localizar el punto en el que desee comenzar la edición, y después presione ❚❚ para poner la videocámara en el modo de reproducción en pausa.
(3) En la videograbadora, localice el punto de inicio de la grabación y ponga la videograbadora en el modo de grabación en pausa.
(4) Presione simultáneamente ❚❚ de la videocámara y la videograbadora para comenzar la edición.

Para editar más escenas

Repita los pasos 2 a 4.

Para cesar la edición

Presione □ de la videocámara y la videograbadora.

Nota sobre la función DISPLAY

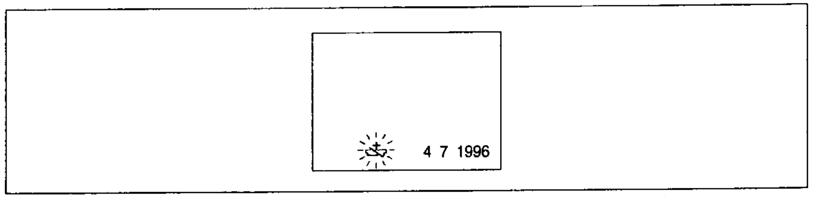
Si ha visualizado los indicadores de la pantalla del visor en el televisor, borre los indicadores presionando DISPLAY del telemando para que no se superpongan sobre la cinta editada.

Changing the lithium battery in the camcorder

Reemplazo de la pila de litio de la videocámara

Your camcorder is supplied with a lithium battery installed. When the battery becomes weak or dead, the ☼ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)

La videocámara se suministra con una pila de litio instalada. Cuando la pila de litio se debilite o agote, el indicador ☼ parpadeará en el visor durante unos 5 segundos cuando ponga el selector POWER en CAMERA. En este caso, **reemplace la pila por otra de litio CR2025 Sony. El empleo de otra pila puede suponer un riesgo de incendio o explosión.**
La pila de litio durará aproximadamente 1 año si se utiliza en condiciones normales de funcionamiento. (Es posible que la pila instalada en fábrica no dure 1 año.)

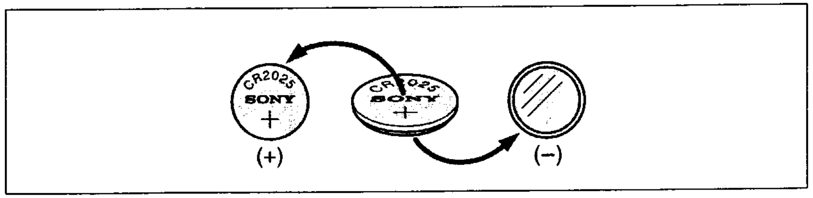


Note on lithium battery

The lithium battery has positive (+) side and negative (–) side as illustrated. **Be sure to insert the lithium battery with the positive side facing out.**

Nota sobre la pila de litio

La pila de litio posee un lado positivo (+) y otro negativo (–) como se ilustra. **Cerciórese de colocar la pila con el lado positivo hacia afuera.**



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution

Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

ADVERTENCIA

Si trata mal la pila, puede explotar. No recargue, desarme, ni tire la pila al fuego.

Precaución

Mantenga la pila de litio fuera de alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico.

Changing the lithium battery

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu system retained by the lithium battery.

(1) Open the lid of the lithium battery compartment.

(2) Push the lithium battery down once and pull it out from the holder.

(3) Install the lithium battery with the positive (+) side facing out. Close the lid.

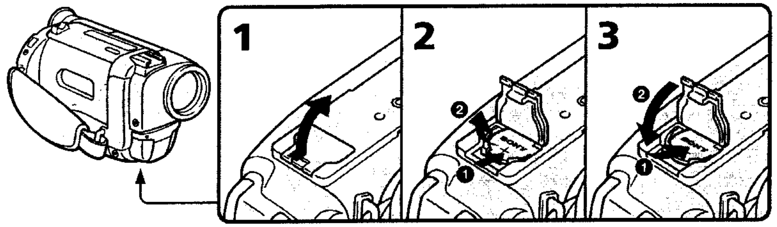
Reemplazo de la pila de litio

Durante el reemplazo de la pila de litio, mantenga la batería u otra fuente de alimentación conectada. De lo contrario, deberá reajustar la fecha, la hora y los otros ítems en el sistema del menú mantenidos mediante la pila de litio.

(1) Abra la tapa del compartimiento de la pila de litio.

(2) Empuje la pila una vez hacia abajo y sáquela del portapila.

(3) Coloque una pila de litio nueva con el lado positivo (+) hacia afuera. Cierre la tapa.



Resetting the date and time

You can set the date and time in the menu system.

(1) Press MENU to display the menu in the viewfinder.

(2) Turn the control dial to highlight CLOCK SET, and press the control dial to select it.

(3) Turn the control dial to adjust the year, and then press the control dial.

(4) Set the month, day, hour, and minutes by turning the control dial and then pressing the control dial.

(5) Press MENU to erase the menu display.

Reajuste de la fecha y la hora

La fecha y la hora podrán reajustarse en el sistema del menú.

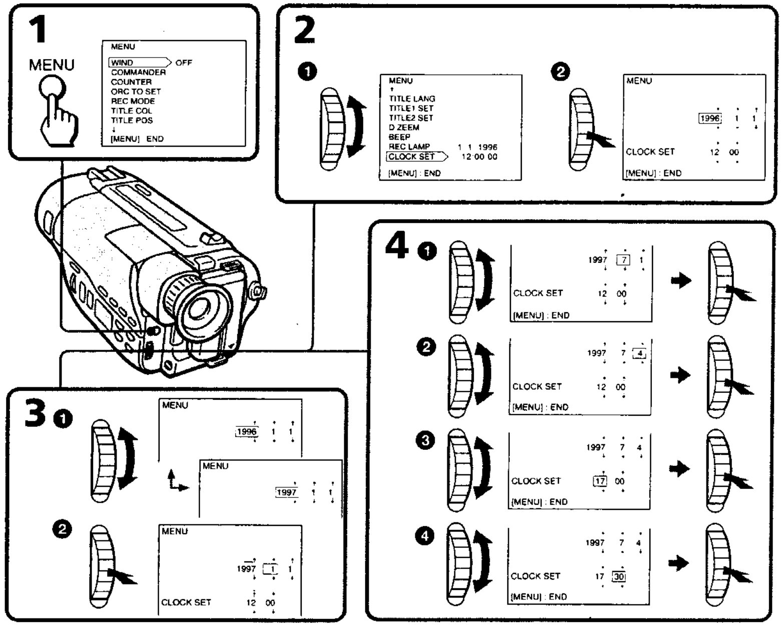
(1) Presione MENU para visualizar el menú en el visor.

(2) Gire el dial de control para resaltar CLOCK SET y presione el dial para seleccionarlo.

(3) Gire el dial de control para ajustar el año, y presione el dial.

(4) Ajuste el mes, día, hora y minutos girando y presionando el dial.

(5) Presione MENU para borrar la visualización del menú.


1
MENU
MENU
WIND OFF
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
[MENU]: END
2
❶
MENU
TITLE LANG
TITLE1 SET
TITLE2 SET
D ZEEM
BEEP
REC LAMP
CLOCK SET 1 1 1996 12 00 00
[MENU]: END
❷
MENU
1996 1 1
CLOCK SET 12 00
[MENU]: END
3 ❶
MENU
1996 1 1
MENU
1997 1 1
❷
MENU
1997 1 1
CLOCK SET 12 00
4 ❶
1997 7 1
CLOCK SET 12 00
[MENU]: END
❷
1997 7 4
CLOCK SET 12 00
[MENU]: END
❸
1997 7 4
CLOCK SET 17 00
[MENU]: END
❹
1997 7 4
CLOCK SET 17 30
[MENU]: END

To correct the date and time setting

Repeat the above procedure.

Para corregir los ajustes de la fecha y la hora

Repita los pasos anteriores.

To check the preset date and time

Press DATE to display the date indicator in the viewfinder.
Press TIME to display the time indicator.
When you press the same button again, the indicator goes off.

The year changes as follows:

1996 ←→ 1997 ← ···· → 2029

Note on the time indicator
The internal clock of this camcorder operates on a 24-hour cycle.

Para comprobar la fecha y la hora preajustadas

Presione DATE de forma que el indicador de la fecha aparezca en el visor.
Presione TIME para visualizar el indicador de la hora. Cuando vuelva a presionar la misma tecla, el indicador se apagará.

El indicador del año cambiará como sigue:

1996 ←→ 1997 ← ···· → 2029

Nota sobre el indicador horario
El reloj interno de la videocámara funciona con el ciclo de 24 horas.

Usable cassettes and playback modes

Videocassettes utilizables y modos de reproducción

Selecting cassette types (CCD-TR760E/TR810E only)

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures.
You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using the standard 8 mm video recorder/player, you should use standard 8 mm cassettes.

To play back in	Record using cassette type
Hi8	Hi8
Standard 8	8

Selección del tipo de videocassette (CCD-TR760E/TR810E solamente)

Este sistema Hi8 se desarrolló a partir del sistema de 8 mm estándar ofreciendo mayor calidad en la imagen.
Usted podrá utilizar los videocassettes Hi8 y los de 8 mm estándar. Cuando desee grabar en el sistema Hi8, deberá utilizar solamente videocassettes Hi8. Un videocassette de 8 mm estándar no podrá grabarse en el sistema Hi8.
Cuando vaya a reproducir la cinta en una videograbadora/reproductor de 8 mm estándar, deberá utilizar videocassettes de 8 mm estándar.

Para reproducir en el sistema	Grabación empleando un videocassette de tipo
Hi8	Hi8
8 mm estándar	8

When you play back

The playback mode (SP/LP or Hi8/standard 8 mm (CCD-TR760E/TR810E only)) is selected automatically according to the format in which the tape has been recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

Note on AFM HiFi stereo

When you play back a tape, the sound will be in monaural if:

- You record the tape using this camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on this camcorder.

Recording mode

When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode SP/LP.

Playing back an NTSC-recorded tape
You can play back tapes recorded in the NTSC video system using the SP mode. If the tape is recorded in the AFM HiFi system, the AFM HiFi sound is reproduced. However, note that the following will occur during playback of an NTSC-recorded tape.

Cuando reproduzca

El modo de reproducción (SP/LP o Hi8/8 mm estándar (CCD-TR760E/TR810E solamente)) se seleccionará automáticamente de acuerdo con el formato en el que se haya grabado la cinta. Sin embargo, la calidad de la imagen grabada en el modo LP no será tan buena como en el modo SP.

Notas sobre el modo estéreo de alta fidelidad de AFM

Cuando reproduzca una cinta, el sonido será monoaural si:

- Reproduce una cinta grabada en esta videocámara en una videograbadora/reproductor monoaural de alta fidelidad de AFM.
- Reproduce en esta videocámara una cinta grabada en una videograbadora monoaural de alta fidelidad de AFM.

Modo de grabación

Cuando reproduzca una cinta, el indicador SP/LP en el visor señalará el modo de grabación SP/LP.

Reproducción de una cinta grabada con el sistema NTSC
Es posible reproducir cintas grabadas con el sistema de vídeo NTSC utilizando el modo SP. Si la cinta está grabada con el sistema de alta fidelidad de AFM, se reproducirá el sonido de alta fidelidad de AFM. Sin embargo, tenga en cuenta que durante la reproducción de una cinta grabada con el sistema NTSC se producirá lo siguiente.

- You cannot play back a tape recorded in NTSC video system with LP mode.
- If a tape has portions recorded in PAL and NTSC video systems, the tape counter reading is not correct. This discrepancy is due to the difference between the counting cycle of the two video systems.
- You cannot edit the NTSC-recorded tape onto another VCR.
- When you play back on a Multi System TV, set NTSC PB to the appropriate mode in the menu system.

- No es posible reproducir una cinta grabada con el sistema NTSC en el modo LP.
- Si la cinta tiene partes grabadas con los sistemas de vídeo PAL y NTSC, la indicación del contador de la cinta no será correcta. La discrepancia se debe a la diferencia del ciclo de recuento de los dos sistemas de vídeo.
- La cinta grabada con el sistema NTSC no podrá editarse en otra videograbadora.
- Cuando reproduzca una cinta en un televisor de sistema múltiple, ponga NTSC PB en el modo deseado en el sistema del menú.

Tips for using the battery pack

Consejos para utilizar la batería

This section shows you how you can get the most out of your battery pack.

Preparing the battery pack

Always carry additional batteries
Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment
Battery efficiency is decreased, and the battery will be used up more quickly, if you are recording in a cold environment.

To save battery power
Turn STANDBY down when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

En esta sección se explica la forma de obtener el máximo rendimiento de la batería.

Preparación de la batería

Lleve siempre baterías adicionales
Prepare suficientes baterías como para poder alimentar la videocámara el doble o el triple del tiempo de filmación planeada.

La duración de la batería se acortará en climas fríos.
La eficacia de la batería disminuirá y se gastará con mayor rapidez si graba en climas fríos.

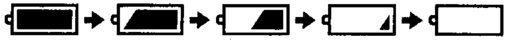
Para ahorrar batería
Gire el interruptor STANDBY hacia abajo cuando no vaya a videofilmar a fin de ahorrar batería.
Aunque detenga y reinicie la filmación, obtendrá una grabación sin transiciones bruscas entre las escenas. Mientras encuadre el motivo o seleccione un ángulo, u observe a través del visor, el objetivo se moverá automáticamente y se utilizará la batería. La batería también se utilizará al insertar o extraer un videocassette.

When to replace the battery pack

While you are using your camcorder, the remaining battery indicator in the viewfinder decreases gradually as battery power is used up. The minute indicator appears with the remaining battery indicator while recording.

Cuándo reemplazar la batería

Mientras esté utilizando la videocámara, el indicador de carga restante de la batería disminuirá gradualmente a medida que se reduzca la carga de la batería.
Eel indicador de los minutos aparecerá junto con el indicador de caga restante de la batería durante la grabación.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder.
When the ▭ indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, slide the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced. The mark may start flashing even when the battery has enough power to last about 5 or 10 minuts.

Notes on the rechargeable battery pack

Caution
Never leave the battery pack in temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up
During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern and is normal.

Cuando el indicador de carga restante de la batería llegue al punto mínimo, en el visor aparecerá el indicador ▭ y comenzará a parpadear.
Cuando el indicador ▭ en el visor cambie de parpadeo lento a rápido mientras grabe, ponga el selector POWER de la videocámara en OFF y reemplace la batería. Deje el videocassette en la videocámara para obtener una grabación sin transiciones bruscas entre las escenas después de haber reemplazado la batería. Es posible que la marca comience a parpadear incluso aunque la batería tenga suficiente energía como para unos 5 o 10 minutos más.

Notas sobre la batería

Precaución
Nunca deje la batería a temperaturas superiores a los 60°C, como en un automóvil aparcado al sol o bajo la luz solar directa.

La batería se calentará
Durante la carga o la grabación, la batería se calentará. Esto se debe a la energía generada y al cambio químico que se producen en el interior de la batería, y no significa problema alguno.

About InfoLITHIUM batteries

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data with compatible video equipment about its battery consumption. Sony recommends that you use the "InfoLITHIUM" battery pack with video equipment having the InfoLITHIUM mark.

When you use this battery pack with video equipment having the InfoLITHIUM mark, the video equipment will indicate the remaining battery time in minutes*. However, if you use it with video equipment not having this mark, the remaining battery capacity will not be indicated in minutes.

* The indication may not be accurate depending on the condition and environment which the equipment is used under. If the indication is not accurate, use the battery pack completely and then charge it fully. The indication will become accurate. However, the indication may not become accurate if you use or leave the battery pack in a warm place for a long time, or after you have used the battery pack many times.

Battery pack care

- **Remove the battery pack from the camcorder after using it**, and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

Sobre las baterías InfoLITHIUM

La batería InfoLITHIUM es una batería de iones de litio que puede intercambiar datos con equipos de vídeo compatibles en cuanto al consumo de la batería. Se recomienda utilizar la batería InfoLITHIUM con equipos que tengan la marca InfoLITHIUM.

Cuando utilice esta batería con un equipo de vídeo que posea la marca InfoLITHIUM, el equipo de vídeo señalará el tiempo de capacidad restante de la batería en minutos*. Sin embargo, cuando utilice esta batería con un equipo de vídeo sin dicha marca, la capacidad restante de la batería no se indicará en minutos.

* La indicación puede no ser precisa dependiendo de la condición o el entorno donde se utilice el equipo. Cuando la indicación no sea precisa, utilice completamente la batería y cárguela por completo. La indicación se volverá precisa, pero es posible que no lo sea si utiliza o deja la batería en un lugar cálido durante mucho tiempo, o la ha utilizado muchas veces.

Cuidado de la batería

- **Después de haber empleado la batería quítela de la videocámara** y guárdela en un lugar fresco. Mientras la batería esté fijada a la videocámara, circulará una pequeña cantidad de corriente incluso aunque el selector POWER esté en OFF. Esto acortará la duración útil de la batería.
- La batería estará siempre descargándose, incluso aunque no se utilice. Por lo tanto, se recomienda cargarla antes de emplear la videocámara.

Tips for using the battery pack

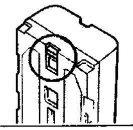
Consejos para utilizar la batería

The switch on the battery pack

This switch is provided so that you can mark the charged battery pack. Set the switch to the "green mark" position when charging is completed. (When removed from the charging adaptor, the switch exposes the green mark. When removed from your camcorder, no mark is indicated.)

Señalador de la batería

Este señalador servirá para saber si la batería está cargada o no. Póngalo en la posición de la "marca verde" cuando finalice la carga. (Cuando quite la batería del adaptador de carga, el señalador mostrará la marca verde. Cuando la quite de la videocámara, no aparecerá ninguna marca.)



The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

Notes on charging

A brand-new battery pack

A brand-new battery pack is not charged. Before using the battery pack, charge the battery. When the CHARGE lamp goes out normal charge is completed. For full charge, which allows you to use the battery longer than usual leave the battery pack in place for approximately one hour.

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Vida útil de la batería

Si el indicador de estado de la batería parpadea rápidamente después de haber conectado la alimentación de la videocámara con una batería completamente cargada, habrá que reemplazarla por otra nueva completamente cargada.

Temperatura durante la carga

Cargue la batería a una temperatura comprendida entre 10 y 30°C. A bajas temperaturas, la carga tardará más en realizarse.

Notas sobre la carga

Baterías nuevas

Una batería nueva no estará cargada. Cargue la batería antes de utilizarla. Cuando la lámpara CHARGE se apague, terminará la carga normal. Para la carga completa, que le permite utilizar la batería más de lo usual, deje la batería en su lugar durante aproximadamente una hora más.

Cargue la batería cuando lo desee

No será necesario descargar la batería antes de cargarla. Si ha cargado completamente la batería pero no la emplea durante mucho tiempo, ésta se descargará. Cargue la batería antes de emplearla.

Notes on the terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.
When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Do not put any foreign objects such as dust or sand in the ⊕ and ⊖ terminals.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

Notes on the Battery Case

- **Use only with alkaline batteries. You cannot use the battery case with manganese batteries or rechargeable batteries.**
- Battery life is remarkably shorter in a cold environment (lower than 50°F/10°C).
- Keep the metal part clean. If it gets dirty, wipe it with a soft cloth.
- Do not disassemble or convert the battery case.
- Do not expose the battery case to any mechanical shock.
- During recording, the battery case heats up. This is not cause for concern.
- Prevent the electrode in the battery case from coming in contact with a metal object.
- If you will not use the battery case for a long time, detach the battery case from the camcorder and remove the batteries from the battery case.

Note on Alkaline Batteries

To avoid possible damage from battery leakage or corrosion, observe the following.

- Be sure to insert the batteries in the correct direction.
- Alkaline batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

Nota sobre los terminales

Si los terminales (partes metálicas de la parte posterior) no están limpios, la duración de la batería se acortará.
Cuando los terminales no estén limpios o no haya utilizado la batería durante mucho tiempo, fije y quite la batería repetidamente. Esto mejorará el contacto. No coloque ningún objeto extraño como polvo o arena en los terminales ⊕ y ⊖.

Tenga en cuenta lo siguiente.

- Mantenga la batería alejada del fuego.
- Mantenga seca la batería.
- No abra ni desarme la batería.
- No la someta a ninguna clase de golpes.

Notas sobre la caja de pilas

- **Utilícela solamente con pilas alcalinas. No podrá utilizar la caja de pilas con pilas de manganeso o baterías.**
- La duración de las pilas se acortará notablemente en climas fríos (inferior a 10°C).
- Mantenga limpia la parte metálica. Si se ensucia, límpiela con un paño suave.
- No desarme ni deforme la caja de pilas.
- No le dé ninguna clase de golpes.
- Durante la grabación, la caja de pilas se calentará. Esto no es motivo de preocupación.
- Evite que el electrodo en la caja de pilas entre en contacto con un objeto metálico.
- Cuando no vaya a utilizar la caja de pilas durante mucho tiempo, quite la caja de la videocámara y extraiga las pilas de la caja.

Notas sobre las pilas alcalinas

Para evitar los posibles daños que podría causar la fuga o corrosión de las pilas, tenga en cuenta lo siguiente.

- Cerciórese de colocar correctamente las pilas.
- Las pilas alcalinas no se pueden cargar.
- No utilice pilas nuevas junto con las viejas.
- No utilice a la vez pilas de tipos diferentes.
- Las pilas se descargarán gradualmente si no las utiliza.
- No emplee una pila con derrame.

Tips for using the battery pack

If battery leakage occurred

- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

Consejos para utilizar la batería

Cuando el líquido de las pilas se derrame

- Limpie cuidadosamente el líquido en la caja de pilas antes de volver a colocar las pilas.
- Si toca el líquido, lávese con agua.
- Si el líquido le entra en los ojos, lávelos con mucha cantidad de agua y después consulte con un médico.

Maintenance information and precautions

Moisture condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the 💧 indicator flashes. If this happens, none of the functions except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour.

Información sobre el mantenimiento y precauciones

Condensación de humedad

Si traslada directamente la videocámara de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo. En tales condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente. Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Sin embargo, tenga en cuenta las precauciones siguientes.

En el interior de la videocámara

Cuando el indicador 💧 parpadee y se oiga un pitido, se habrá condensado humedad en el interior de la videocámara. En este caso, no trabajará ninguna función excepto la de expulsión del videocassette. Abra el compartimiento del videocassette, desconecte la alimentación de la videocámara, y déjela durante aproximadamente 1 hora. Si el indicador ⏏ parpadea al mismo tiempo, habrá un cassette insertado en la videocámara. Extraiga el videocassette, desconecte la alimentación de la videocámara y también deje el videocassette durante 1 hora aproximadamente.

On the lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.
(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator and "📼 CLEANING CASSETTE" message appear one after another in the viewfinder or playback pictures are "noisy" or hardly visible, the video heads may be dirty.

En el objetivo

Si se condensa humedad en el objetivo, no aparecerá ningún indicador, pero la imagen se volverá borrosa. Desconecte la alimentación y no utilice la videocámara durante aproximadamente 1 hora.

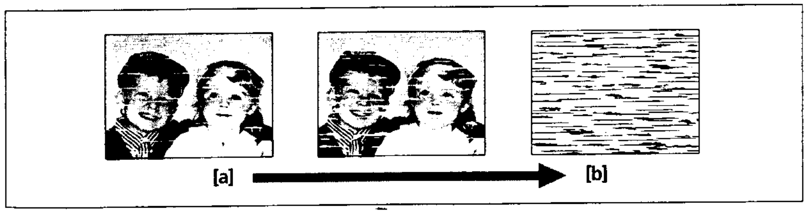
Cómo prevenir la condensación de humedad

Cuando traslade la videocámara de un lugar frío a otro cálido, coloque la videocámara en una bolsa de plástico y deje que se adapte a las condiciones ambientales de la habitación durante cierto tiempo.

(1) No se olvide de cerrar firmemente la bolsa de plástico que contiene la videocámara.
(2) Saque la videocámara de la bolsa cuando la temperatura del aire del interior de la bolsa haya alcanzado la ambiental (después de 1 hora aproximadamente).

Limpieza de las cabezas de vídeo

Para asegurar una grabación normal y unas imágenes claras, limpie las cabezas de vídeo. Cuando el indicador ⊗ y el mensaje "📼 CLEANING CASSETTE" aparezcan uno después del otro en el visor o las imágenes reproducidas sean "ruidosas" o difíciles de ver, es posible que las cabezas de vídeo estén sucias.



[a] Slightly dirty
[b] Very dirty

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy," repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

[a] Cabezas ligeramente sucias
[b] Cabezas muy sucias

Si pasa esto, limpie las cabezas de vídeo con un cassette de limpieza V8-25CLH Sony (no suministrado). Después de la limpieza, si las imágenes siguen "ruidosas", repita la limpieza. (No repita la limpieza más de 5 veces seguidas.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Removing dust from inside the viewfinder

(1) Remove the screw with a screwdriver (not supplied). Then, while holding down RELEASE on the viewfinder barrel, turn the eyecup in the direction of the arrow and pull it out.
(2) Clean the surface with a commercially available blower.

Precaución

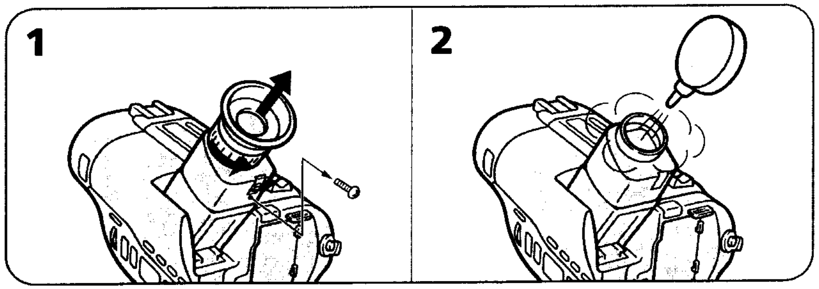
No utilice cassettes de limpieza de tipo húmedo adquiribles en tiendas del ramo, ya que podrían dañar las cabezas de vídeo.

Nota

Si el cassette de limpieza V8-25CLH no está disponible en su zona, consulte a un centro de servicios Sony.

Para quitar el polvo del interior del visor

(1) Quite el tornillo con un destornillador (no suministrado). Manteniendo presionada RELEASE en el tubo del visor, gire el ocular en el sentido de la flecha y quítelo.
(2) Limpie la superficie con un soplador disponible en tiendas del ramo.

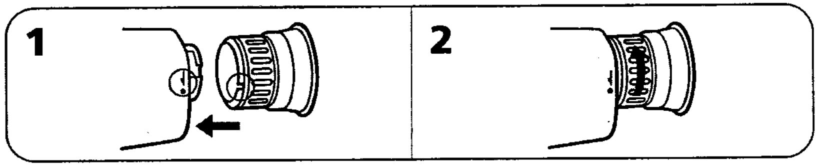


To reattach the eyecup

(1) Align the groove on the eyecup with the • mark on the barrel.
(2) Turn the eyecup in the direction of the arrow. Then, replace the screw.

Para volver a colocar el ocular

(1) Alinee la ranura en el ocular con la marca • del tubo.
(2) Gire el ocular en el sentido de la flecha. Después vuelva a colocar el tornillo.



Caution

Do not remove any other screws. You may remove only the screws to remove the eyecup.

Precaución

No quite ningún otro tornillo. Usted solamente deberá quitar el tornillo para desmontar el ocular.

Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On handling tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is in or out.

Camcorder care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Precauciones

Operación de la videocámara

- Alimente la videocámara con 7,2 V (batería) o 8,4 V (adaptador de alimentación de CA).
- Para alimentarla con CC o CA, utilice sólo los accesorios recomendados en este manual.
- Si dentro de la videocámara cae algún objeto sólido o líquido, desenchufe la videocámara y haga que sea revisada por su proveedor Sony antes de reutilizarla.
- Evite tratos bruscos o golpes. Tenga especial cuidado con el objetivo.
- Cuando no vaya a utilizar la videocámara, ponga el selector POWER en OFF.
- No utilice la videocámara envuelta, porque se recalentaría.
- Mantenga la videocámara alejada de campos magnéticos intensos y vibraciones mecánicas.

Cuidado del videocassette

No inserte nada en los pequeños orificios de la parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, o si la lengüeta está o no deslizada.

Cuidados de la videocámara

- Cuando no vaya a utilizar la videocámara durante mucho tiempo, desconecte la fuente de alimentación y extraiga el videocassette. Conecte periódicamente la alimentación, haga funcionar las secciones de la videocámara y el reproductor, y reproduzca una cinta durante unos 3 minutos.
- Limpie el polvo del objetivo con un cepillo suave. Elimine las huellas dactilares con un paño suave.
- Limpie el cuerpo de la videocámara con un paño suave y seco, o ligeramente humedecido en una solución muy diluida de detergente. No emplee ningún tipo de disolvente ya que podría dañar la terminación.

Maintenance information and precautions

AC power adaptor

Charging

- Use only a lithium ion type battery pack.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from the mains when not in use for a long time. To disconnect the mains lead, pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC mains lead forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Información sobre el mantenimiento y precauciones

Adaptador de alimentación de CA

Carga

- Utilice solamente una batería de tipo iones de litio.
- Cargue la batería sobre una superficie plana sin vibraciones.
- La batería se calentará durante la carga. Esto es normal.

Otros

- Cuando no vaya a utilizar la unidad durante mucho tiempo, desenchúfela de la toma de la red. Para desconectar el cable de alimentación, tire del enchufe. No tire nunca del propio cable.
- No emplee la unidad con el cable dañado, después de haberla dejado caer, o cuando esté dañada.
- No doble a la fuerza el cable de alimentación de CA, ni coloque objetos pesados sobre él, ya que podría dañar el cable y provocar incendios o descargas eléctricas.
- Cerciórese de que ningún objeto metálico entre en contacto con las partes metálicas de la placa conectora, ya que se podría producir un cortocircuito que dañaría la unidad.
- Mantenga siempre limpios los contactos metálicos.
- No desarme la unidad.
- No golpee ni deje caer la unidad.
- Cuando esté empleando la unidad, especialmente durante la carga, manténgala alejada de receptores de AM y equipos de vídeo porque perturbaría la recepción de AM y la operación de vídeo.
- La unidad se calentará durante el empleo. Pero esto es normal.
- No coloque la unidad en lugares:
  - Extremadamente cálidos o fríos
  - Polvorientos o sucios
  - Muy húmedos
  - Sujetos a vibraciones

Si surge alguna dificultad, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Using your camcorder abroad

Each country has its own electric and TV colour systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in colour systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system-based TV.
Check the following list.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Utilización de la videocámara en el extranjero

Cada país posee su propio sistema de suministro eléctrico y sistema de televisión en color. Antes de utilizar su videocámara en el extranjero, verifique los puntos siguientes.

Fuentes de alimentación

Usted podrá utilizar su videocámara en cualquier país con el adaptador de alimentación de CA suministrado dentro de margen de 110 a 240 V CA, 50/60 Hz.

Diferencia en los sistemas de color

Esta videocámara está basada en el sistema PAL. Si desea ver la imagen reproducida en un televisor, éste deberá estar basado en el sistema PAL.
Compruebe la lista siguiente.

Países con el sistema PAL
Alemania, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Noruega, Nueva Zelanda, Portugal, Singapur, Suecia, Suiza, Tailandia, etc.

País con el sistema PAL-M
Brasil

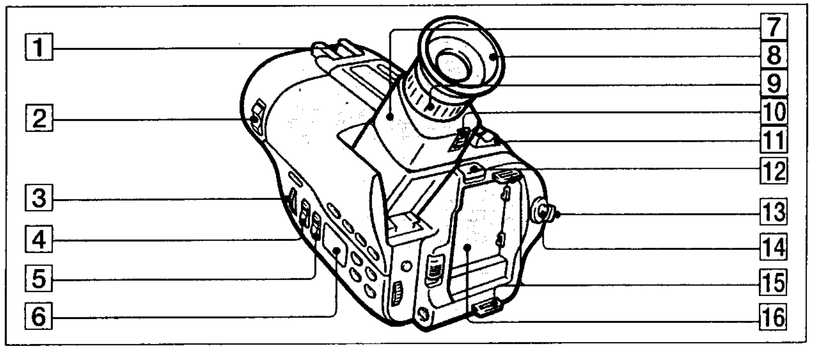
Países con el sistema PAL-N
Argentina, Paraguay, Uruguay

Países con el sistema NTSC
Bolivia, Canadá, Centroamérica, Colombia, Corea, Chile, Ecuador, EE.UU., Filipinas, Islas Bahamas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Venezuela, etc.

Países con el sistema SECAM
Bulgaria, Francia, Guyana, Hungría, Irán, Iraq, Mónaco, Polonia, República de Checo, República de Eslovaquia, Rusia, Ucrania, etc.

Identifying the parts

Identificación de las partes



1 **Intelligent adccessory shoe (for CCD-TR760E/TR810E only)**
Accessory shoe (for CCD-TR610E only)
The intelligent accessory shoe supplies power to optional accessories such as a video light.

2 **POWER switch** (p.13)

3 **FAR/NEAR dial** (p.41)

4 **FOCUS switch** (p.41)

5 **STEADY SHOT switch (CCD-TR610E/TR810E only)** (p.47)

6 **Display window** (p.104)

7 **Viewfinder** (p.14, 18, 82)

8 **Eyecup** (p.18)

9 **Viewfinder lens adjustment ring** (p.14)

10 **RELEASE knob** (p.82)

11 **Power zoom lever** (p.16)

12 **BATT (battery) PUSH button** (p.11)

13 **STANDBY switch** (p.13)

14 **START/STOP button** (p.13)

15 **Hooks for shoulder strap** (p.103)

16 **Battery mounting surface**

1 **Zapata de alimentación de accesorios (para la CCD-TR810E/TR760E solamente)**
Zapata para accesorios (para la CCD-TR610E solamente)
La zapata de alimentación de accesorios suministra alimentación a los accesorios opcionales como una lámpara para vídeo.

2 **Selector de alimentación (POWER)** (pág.13)

3 **Dial para el motivo lejano/cercano (FAR/NEAR)** (pág.41)

4 **Selector de enfoque (FOCUS)** (pág.41)

5 **Interruptor de videofilmación estable (STEADY SHOT) (CCD-TR610E/TR810E solamente)** (pág.47)

6 **Ventanilla visualizadora** (pág.105)

7 **Visor** (pág.14, 18, 82)

8 **Ocular** (pág.18)

9 **Anillo de ajuste de la lente del visor** (pág.14)

10 **Mando de liberación (RELEASE)** (pág.82)

11 **Palanca del zoom motorizado** (pág.16)

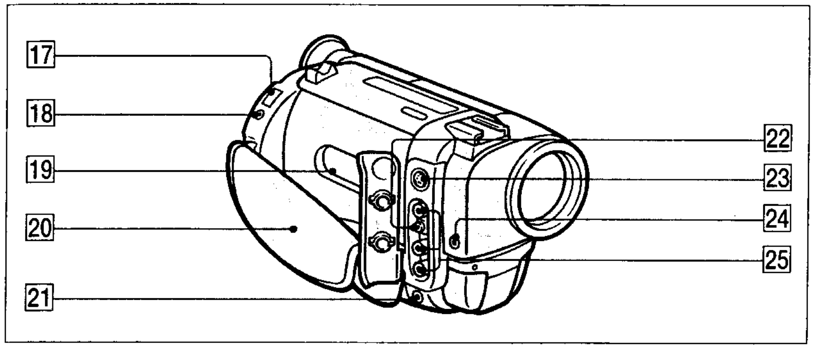
12 **Tecla de liberación de la batería (BATT PUSH)** (pág.11)

13 **Interruptor de espera (STANDBY)** (pág.13)

14 **Tecla de inicio/parada (START/STOP)** (pág.13)

15 **Ganchos para la bandolera** (pág.103)

16 **Superficie de montaje de la batería**



17 **EJECT switch** (p.12)

18 **REMOTE LANC Ⓛ control jack**
Ⓛ stands for Local Application Control Bus System. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

19 **Cassette compartment** (p.12)

20 **Grip strap** (p.18)

21 **🎧 (headphones) jack** (p.24)

22 **RFU DC OUT (RFU adaptor DC output) jack** (p.22)

23 **S VIDEO jack (CCD-TR760E/TR810E only)** (p.21, 22)

24 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.

25 **VIDEO/AUDIO jacks** (p.21, 22)

17 **Interruptor de expulsión del videocassette (EJECT)** (pág.12)

18 **Toma de control remoto (REMOTE LANC Ⓛ)**
Ⓛ significa sistema de control de bus de aplicación local. La toma Ⓛ se emplea para controlar el movimiento de la cinta de equipos de vídeo y dispositivos periféricos conectados a la misma. Esta toma posee la misma función que los conectores indicados como CONTROL L o REMOTE.

19 **Compartimiento del videocassette** (pág.12)

20 **Correa de la empuñadura** (pág.18)

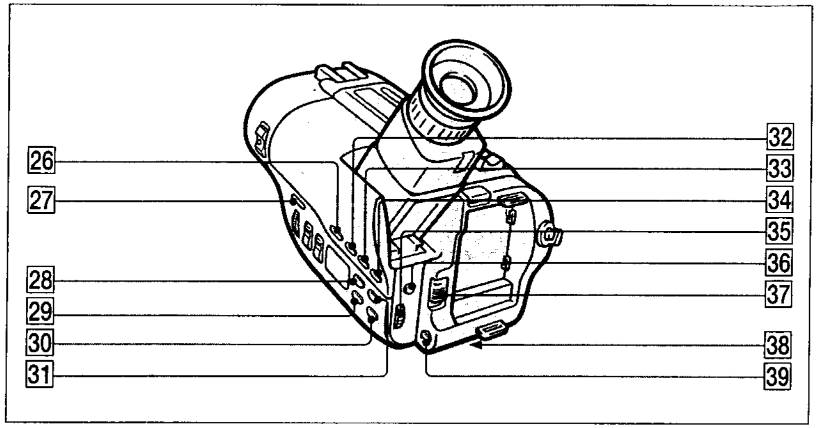
21 **Toma para auriculares (🎧)** (pág.24)

22 **Toma de salida de CC para el adaptador de RFU (RFU DC OUT)** (pág.22)

23 **Toma de vídeo S (S VIDEO) (CCD-TR760E/ TR810E solamente)** (pág.21, 22)

24 **Toma para micrófono (MIC) alimentado a través de la clavija (PLUG IN POWER)**
Conéctele un micrófono externo (no suministrado). Esta toma también acepta un micrófono "alimentado a través de la clavija".

25 **Tomas de vídeo/audio (VIDEO/AUDIO)** (pág.21, 22)



26 **BACKLIGHT button** (p.44)

27 **FADER button** (p.34)

28 **TITLE button** (p.49)

29 **PICTURE EFFECT button** (p.38)

30 **PROGRAM AE button** (p.43)

31 **EXPOSURE button** (p.45)

32 **DATE button** (p.26, 53)

33 **TIME button** (p.26, 53)

34 **COUNTER RESET button** (p.15, 54, 60)

35 **CONTROL dial** (p.31)

36 **MENU button** (p.31)

37 **START/STOP MODE switch** (p.55)

38 **Handycam station connection (CCD-TR760E/TR810E only)**

39 **WIDE button** (p.37)

26 **Tecla de iluminación de fondo (BACKLIGHT)** (pág.44)

27 **Tecla de aumento gradual/ desvanecimiento (FADER)** (pág.34)

28 **Tecla del título (TITLE)** (pág.49)

29 **Tecla de efecto en la imagen (PICTURE EFFECT)** (pág.38)

30 **Tecla de exposición automática programada (PROGRAM AE)** (pág.43)

31 **Tecla de la exposición (EXPOSURE)** (pág.45)

32 **Tecla de la fecha (DATE)** (pág.26, 53)

33 **Tecla de la hora (TIME)** (pág.26, 53)

34 **Tecla de puesta a cero del contador (COUNTER RESET)** (pág.15, 54, 60)

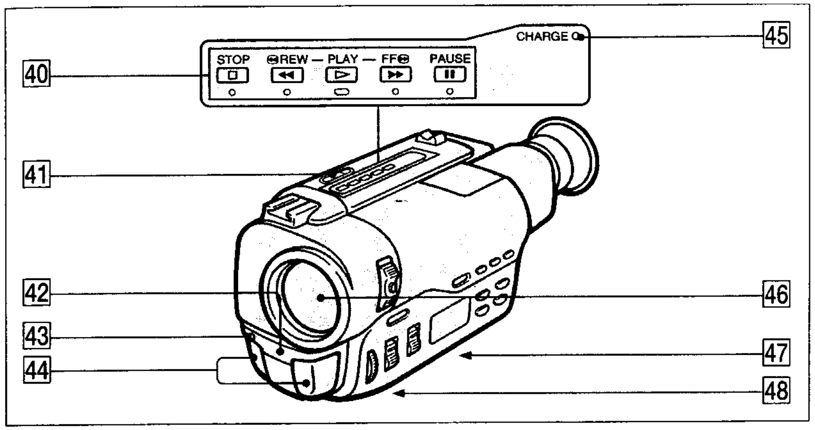
35 **Dial de control (CONTROL)** (pág.31)

36 **Tecla del menú (MENU)** (pág.31)

37 **Selector de modo de inicio/parada (START/ STOP MODE)** (pág.55)

38 **Conexión para el interconectador (CCD-TR760E/TR810E solamente)**

39 **Tecla de modo panorámico (WIDE)** (pág.37)



40 **Tape transport buttons** (p.23)
□ STOP (stop)
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)

41 **EDITSEARCH button** (p.20)

42 **Remote sensor** (p.103)
Aim the Remote Commander here for remote control.

43 **Camera recording/battery lamp** (p.13)

44 **Microphone**

45 **CHARGE lamp (CCD-TR760E/TR810E only)** (p.13)

46 **Lens cover**

47 **Tripod receptacle** (p.18)

48 **Lithium battery compartment** (p.71)

40 **Teclas de transporte de la cinta** (pág.23)
□ STOP (parada)
◀◀ REW (rebobinado)
▷ PLAY (reproducción)
▶▶ FF (avance rápido)
❚❚ PAUSE (pausa)

41 **Tecla de búsqueda para edición (EDITSEARCH)** (pág.20)

42 **Sensor remoto** (pág.103)
Apunte hacia aquí el telemando para controlar a distancia la videocámara.

43 **Lámpara indicadora de videofilmación/estado de la batería** (pág.13)

44 **Micrófono**

45 **Lámpara de carga (CHARGE) (CCD-TR760E/TR810E solamente)** (pág.13)

46 **Cubierta del objetivo**

47 **Receptáculo para trípode** (pág.18)

48 **Compartimiento de la pila de litio** (pág.71)

Identifying the parts

To Watch the demonstration

You can watch a brief demonstration of pictures with special effects.
If the demonstration appears when you turn on the camcorder for the first time, exit the demo mode to use your camcorder.

To exit Demo mode

(1) Turn the POWER switch to PLAYER.
(2) Turn STANBY up.
(3) While holding down □ STOP, turn the POWER switch to CAMERA.
DEMO OFF appears in the viewfinder.

To enter Demo mode

(1) Remove the cassette and turn the POWER switch to PLAYER.
(2) Turn STANBY up.
(3) While holding down ▷ PLAY, turn the POWER switch to CAMERA. Demonstration starts.

If a cassette is inserted, the demo mode will stop. Note that once you enter demo mode, this mode is retained as long as lithium battery is in place. Therefore demonstration starts automatically 10 minutes later every time you turn the POWER switch to CAMERA or 10 minutes after the cassette has been removed.

Identificación de las partes

Para ver la demostración

Usted podrá ver una breve demostración de las imágenes con efectos especiales. Si la demostración aparece al conectar la alimentación de la videocámara por primera vez, salga del modo de demostración para utilizar la videocámara.

Para salir del modo de demostración

(1) Ponga el selector POWER en PLAYER.
(2) Gire STANDBY hacia arriba.
(3) Manteniendo □ STOP hacia abajo, ponga el selector POWER en CAMERA.
En el visor aparecerá DEMO OFF.

Para entrar en el modo de demostración

(1) Extraiga el cassette y ponga el selector POWER en PLAYER.
(2) Gire STANDBY hacia arriba.
(3) Manteniendo ▷ PLAY hacia abajo, ponga el selector POWER en CAMERA. La demostración se iniciará.

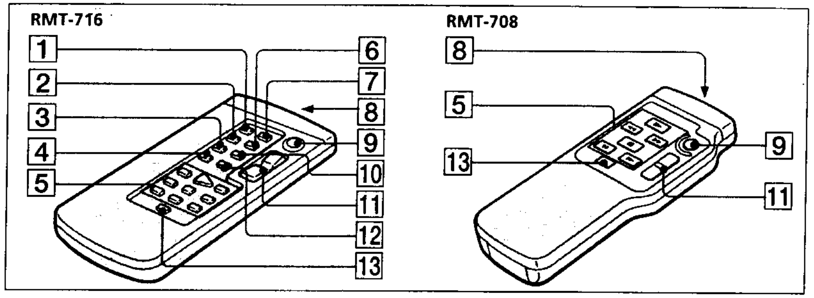
Si inserta un cassette, el modo de demostración se parará. Tenga en cuenta que una vez que haya pasado al modo de demostración, éste se mantendrá mientras la pila de litio esté en su lugar. Por lo tanto, la demostración se iniciará automáticamente 10 minutos después cada vez que ponga el selector POWER en CAMERA, y después de que expulse el cassette.

Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.

Telemando

Las teclas del telemando con el mismo nombre que las de la videocámara poseen idéntica función.



[1] **COUNTER RESET button (CCD-TR760E/TR810E only)** (p.15, 54, 60)

[2] **TIME CODE WRITE button (CCD-TR760E/TR810E only)** (p.66)

[3] **INDEX MARK (CCD-TR760E/TR810E only)** (p.62)

[4] **DATE SEARCH button (CCD-TR760E/TR810E only)** (p.58)

[5] **Tape transport buttons** (p.23)

[6] **DATA CODE button (CCD-TR760E/TR810E only)** (p.26)

[7] **ZERO MEM button (CCD-TR760E/TR810E only)** (p.54, 60)

[8] **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

[9] **START/STOP button** (p.13)

[10] **INDEX ERASE (CCD-TR760E/TR810E only)** (p.65)

[11] **Power zoom button** (p.16)

[12] **INDEX SEARCH button (CCD-TR760E/TR810E only)** (p.63, 64)

[13] **DISPLAY button** (p.25)

[1] **Tecla de puesta a cero del contador (COUNTER RESET) (CCD-TR760E/TR810E solamente)** (pág.15, 54, 60)

[2] **Tecla de escritura del código de tiempo (TIME CODE WRITE) (CCD-TR760E/TR810E solamente)** (pág.66)

[3] **Tecla de marcación de señales de índice (INDEX MARK) (CCD-TR760E/TR810E solamente)** (pág.62)

[4] **Teclas de búsqueda de la fecha (DATE SEARCH) (CCD-TR760E/TR810E solamente)** (pág.58)

[5] **Teclas de transporte de la cinta** (pág.23)

[6] **Tecla de código de datos (DATA CODE) (CCD-TR760E/TR810E solamente)** (pág.26)

[7] **Tecla de memorización de cero (ZERO MEM) (CCD-TR760E/TR810E solamente)** (pág.54, 60)

[8] **Transmisor**
Para controlar la videocámara con el telemando, conecte la alimentación de la videocámara y apunte este transmisor hacia el sensor remoto.

[9] **Tecla de inicio/parada (START/STOP)** (pág.13)

[10] **Tecla de borrado de señales de índice (INDEX ERASE) (CCD-TR760E/TR810E solamente)** (pág.65)

[11] **Tecla del zoom motorizado** (pág.16)

[12] **Tecla de búsqueda con señales de índice (INDEX SEARCH) (CCD-TR760E/TR810E solamente)** (pág.63, 64)

[13] **Tecla de visualización (DISPLAY)** (pág.25)

To prepare the Remote Commander

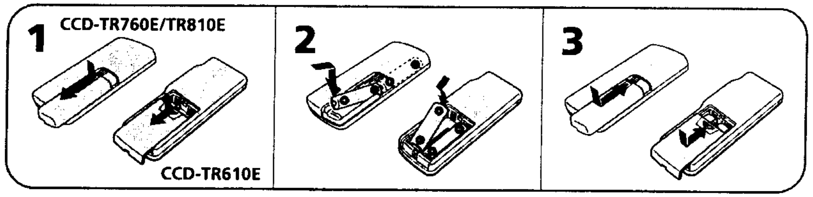
To use the Remote Commander, you must insert two size R6 (AA) batteries. Use the supplied size R6 (AA) batteries.

(1) Remove the battery cover from the Remote Commander.
(2) Insert both of the size R6 (AA) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.

Preparación del telemando

Para utilizar el telemando, deberá colocar dos pilas R6 (tamaño AA). Utilice las pilas R6 (tamaño AA) suministradas.

(1) Quite la tapa del compartimiento de las pilas del telemando.
(2) Inserte las dos pilas R6 (tamaño AA) con la polaridad correcta.
(3) Cierre la tapa del compartimiento.



Note on battery life
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage
Remove the batteries when you will not use the Remote Commander for a long time.

Nota sobre la duración de las pilas
Las pilas en el telemando durarán unos 6 meses en condiciones normales de funcionamiento. Cuando las pilas se debiliten o agoten, el telemando no funcionará.

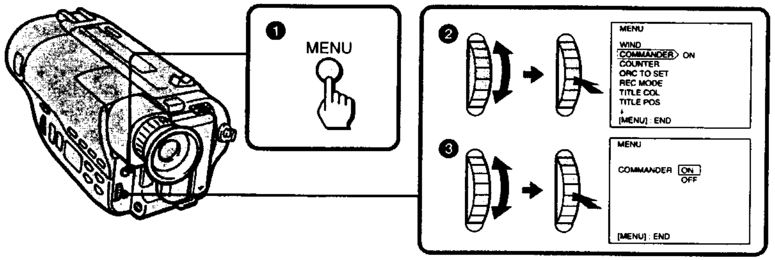
Para evitar el daño que podría causar el derrame del electrólito de las pilas
Cuando no vaya a utilizar el telemando durante mucho tiempo, extraiga las pilas.

To use the Remote Commander

Make sure that the COMMANDER is set to ON in the menu system on the camcorder.

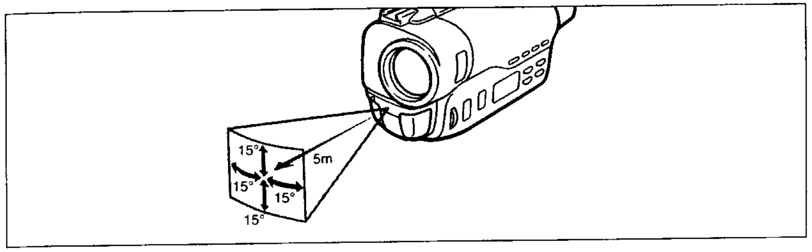
Para emplear el telemando

Cerciórese de ajustar el modo de COMMANDER a ON en el sistema del menú de la videocámara.



Remote control direction

Área controlable mediante el telemando



Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works in commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Notas sobre el telemando

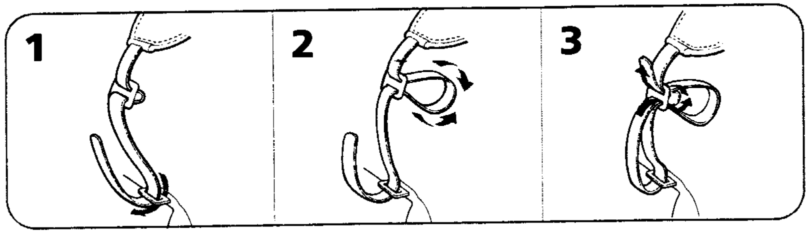
- Mantenga el sensor remoto alejado de luces intensas, como la directa del sol u otras de iluminación intensa. De lo contrario, el telemando no funcionará adecuadamente.
- Asegúrese de que no haya ningún obstáculo entre el telemando y el sensor remoto de la videocámara.
- Esta videocámara funciona con señales del modo de mando VTR 2. El modo de mando (1, 2 y 3) se utiliza para distinguir esta videocámara de otras videograbadoras Sony para evitar una operación errónea. Si utiliza otra videograbadora Sony en el modo de mando VTR 2, se recomienda cambiarlo o cubrir el sensor remoto de la videograbadora con un papel negro.

Attaching the shoulder strap

Attach the supplied shoulder strap to the hooks for the shoulder strap .

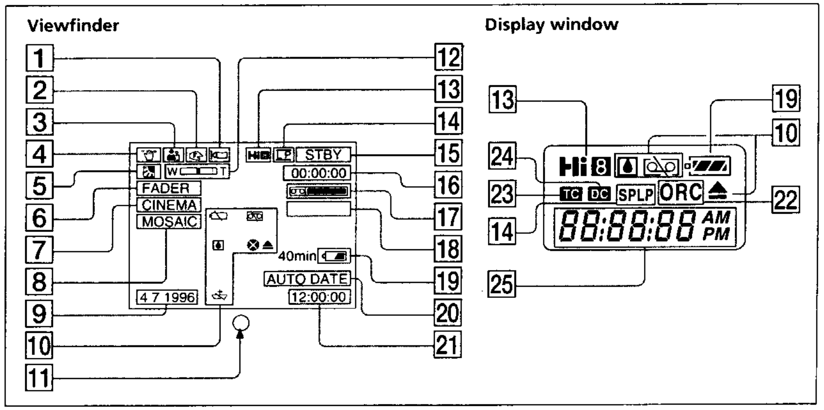
Fijación de la bandolera

Fije la bandolera suministrada a los ganchos para la misma.



Identifying the parts

In the viewfinder



1 **WIND indicator** (p.32)

2 **Manual focusing** (p.41)

3 **PROGRAM AE indicator** (p.42)

4 **SteadyShot indicator (CCD-TR610E/TR810E only)** (p.47)

5 **Backlight indicator** (p.44)

6 **FADER indicator** (p.34)

7 **Wide mode indicator** (p.36)

8 **Picture effect indicator** (p.38)

9 **Data Code indicator (CCD-TR760E/TR810E only)** (p.26)

10 **Warning indicators** (p.106)

11 **Recording lamp/Battery lamp** (p.13)

12 **Exposure indicator/Zoom indicator** (p.16, 45)

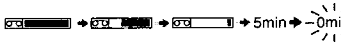
13 **Playing back or recording in Hi8 format (CCD-TR760E/TR810E only)** (p.73)

14 **Lights up when recording or playing back a tape recorded in LP/SP mode** (p.74)

15 **Tape transport mode** (p.23)

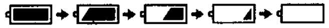
16 **Tape counter** (p.31)
RC time code indicator (p.66) **(CCD-TR760E/TR810E only)**

17 **Remaining tape indicator**



18 **Date search/Date scan indicator (CCD-TR760E/TR810E only)** (p.58)**/TIME CODE WRITE indicator (CCD-TR760E/TR810E only)** (p.66)**/ZERO MEM indicator (CCD-TR760E/TR810E only)** (p.54, 60)**/Index serach/Index scan/Index mark/Index erase indicator (CCD-TR760E/TR810E only)** (p.62, 63, 64, 65)

19 **Remaining battery indicator** (p.76)



20 **AUTO DATE indicator (CCD-TR610E only)**

21 **Date or Time indicator** (p.72)

22 **ORC indicator** (p.57)

23 **Time code indicator (CCD-TR760E/TR810E only)**

24 **Data code indicator (CCD-TR760E/TR810E only)** (p.26)

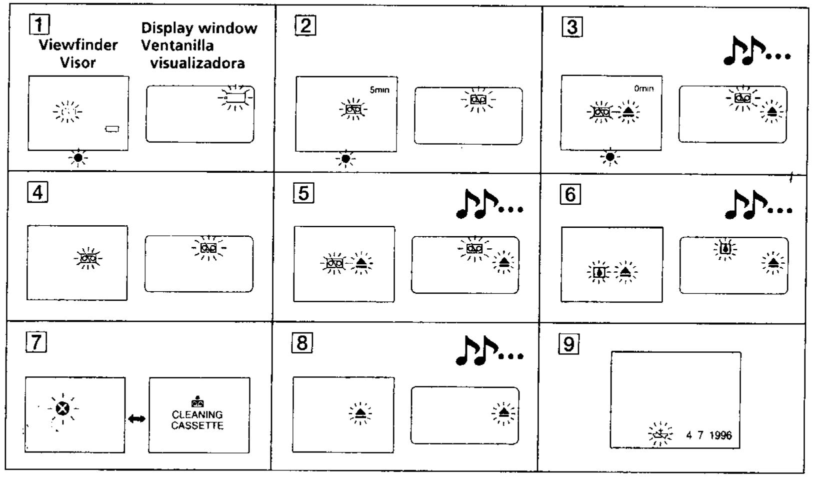
25 **Date or Time indicator** (p.72)**/Tape counter** (p.31)
RC Time Code indicator (CCD-TR760E/TR810E only) (p.66)

Warning indicators

If indicators flash in the viewfinder or in the display window, check the following:
♪: you can hear the beep sound when the BEEP is set to ON.

Indicadores de advertencia

Si parpadean indicadores en el visor o en la ventanilla visualizadora, verifique los puntos siguientes:
♪: Podrá oír un pitido si ajusta BEEP a ON.



1 **The battery is weak or dead.**
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 **The tape is near the end.**
The flashing is slow.

3 **The tape has run out.**
The flashing becomes rapid.

4 **No tape has been inserted.**

5 **The tab on the tape is out (red).**

6 **Moisture condensation has occurred.** (p.80)

7 **The video heads may be contaminated.** (p.81)
This indicator appears only on the viewfinder.

8 **Some other trouble has occurred.**
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 **The lithium battery is weak or is not installed.** (p.70)

1 **La batería está débil o completamente descargada.**
Parpadeo lento: La batería está débil.
Parpadeo rápido: La batería está descargada.

2 **La cinta está a punto de finalizar.**
El parpadeo es lento.

3 **La cinta ha finalizado.**
El parpadeo es más rápido.

4 **No hay videocassette insertado.**

5 **La lengüeta del videocassette está al descubierto (roja).**

6 **Se ha producido condensación de humedad.** (pág.80)

7 **Las cabezas de vídeo pueden estar contaminadas.** (pág.81)
Este indicador aparece sólo en el visor.

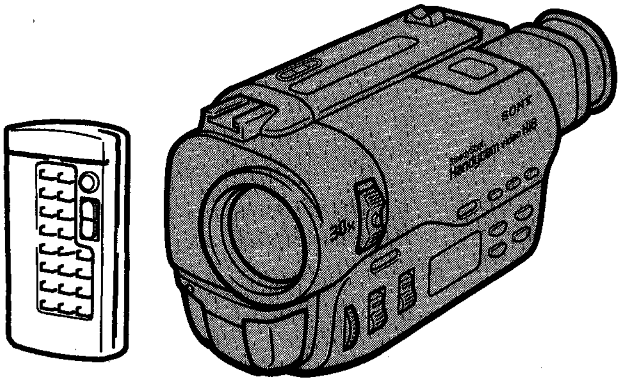
8 **Se ha producido algún otro problema.**
Desconecte la fuente de alimentación y póngase en contacto con su proveedor Sony o una estación de servicio autorizada local.

9 **La pila de litio está débil, o no está colocada.** (pág.70)

CCD-TR710/TR910
RMT-708/715

SERVICE MANUAL

Canadian Model
CCD-TR710/TR910
US Model
E Model
Hong Kong Model
Tourist Model
CCD-TR910



CCD-TR910
RMT-715

Handycam
Video 8
video Hi8
B MECHANISM

TYPE of DIFFERENCES

	Remote Commander	Hi8/ Standard 8	TBC & DNR	TIME CODE	Intelligent Accessory shoe
TR710	RMT-708	Standard 8	—	—	—
TR910	RMT-715	Hi8	○	○	○
		Note 1	Note 2	Note 3	

Note 1: Hi8 (S VIDEO terminal)
2: ○ (IC115 of VC-177 board)
3: ○ (IC128 of HI-39 board)

For MECHANISM ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL VII" (9-973-801-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
NTSC
Usable cassette
8mm video format cassette (Hi8 (CCD-TR910 only) or standard 8 mm)
Recording/Playback time
SP mode: 2 hours (E6/P6-120)
LP mode: 4 hours (E6/P6-120)
When you use a Hi8 video cassette, you cannot record in LP mode.
Fastforward/rewind time
Approx. 5 min. (E6/P6-120)
Image device
CCD (Charge Coupled Device)
Viewfinder
Electronic viewfinder (Color)
Lens
Combined power zoom lens
Filter diameter 1 $^{7}/_{16}$ in. (37 mm)
15x (Optical)
30x (Digital)
Focal distance
$^{3}/_{16}$ – 2 $^{3}/_{8}$ in. (4.1 – 61.5 mm)
1 $^{9}/_{16}$ – 22 $^{1}/_{16}$ in. (39 – 585 mm) when converted to a 35 mm still camera
Minimum illumination
2 lux at F 1.4
Illumination range
2 lux (F 1.4) to 100,000 lux
Recommended illumination
More than 100 lux

Input and output connectors

S video input/output (CCD-TR910 only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input/output
Phono jacks (2: stereo L and R)
327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5 V
Headphone jack
Stereo minijack
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kilohms (ø 3.5 mm)
Stereo type

— Continued on next page —

8 VIDEO CAMERA RECODER
CCD-TR710

Hi 8 VIDEO CAMERA RECODER
CCD-TR910

SONY®

MICROFILM

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
4.1 W during camera recording
Operating temperature
32°F to 104°F (0°C to 40°C)
Storage temperature
–4°F to +140°F (–20°C to +60°C)
Dimensions (Approx.)
4 1/4 x 4 3/8 x 7 1/8 in.
(104 x 109 x 178 mm) (w/h/d)
Mass (Approx.)
1 lb 12 oz (800 g) excluding the battery pack, lithium battery, cassette and shoulder strap
2 lb 1 oz (940g) including the battery pack NP-F530, lithium battery CR 2025, cassette E6/P6-120 and shoulder strap
Microphone
Stereo type
Supplied accessories
See page 1-1.

AC power adaptor

Power requirements
110 – 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730 lithium ion type
Operating temperature
32°F to 104°F (0°C to 40°C)
Storage temperature
–4°F to +140°F (–20°C to +60°C)
Dimensions (Approx.)
3 1/4 x 1 13/16 x 6 1/2 in.
(81 x 45 x 163 mm) (w/h/d) including projecting parts and controls
Mass (Approx.)
1 lb 3 oz (560 g)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

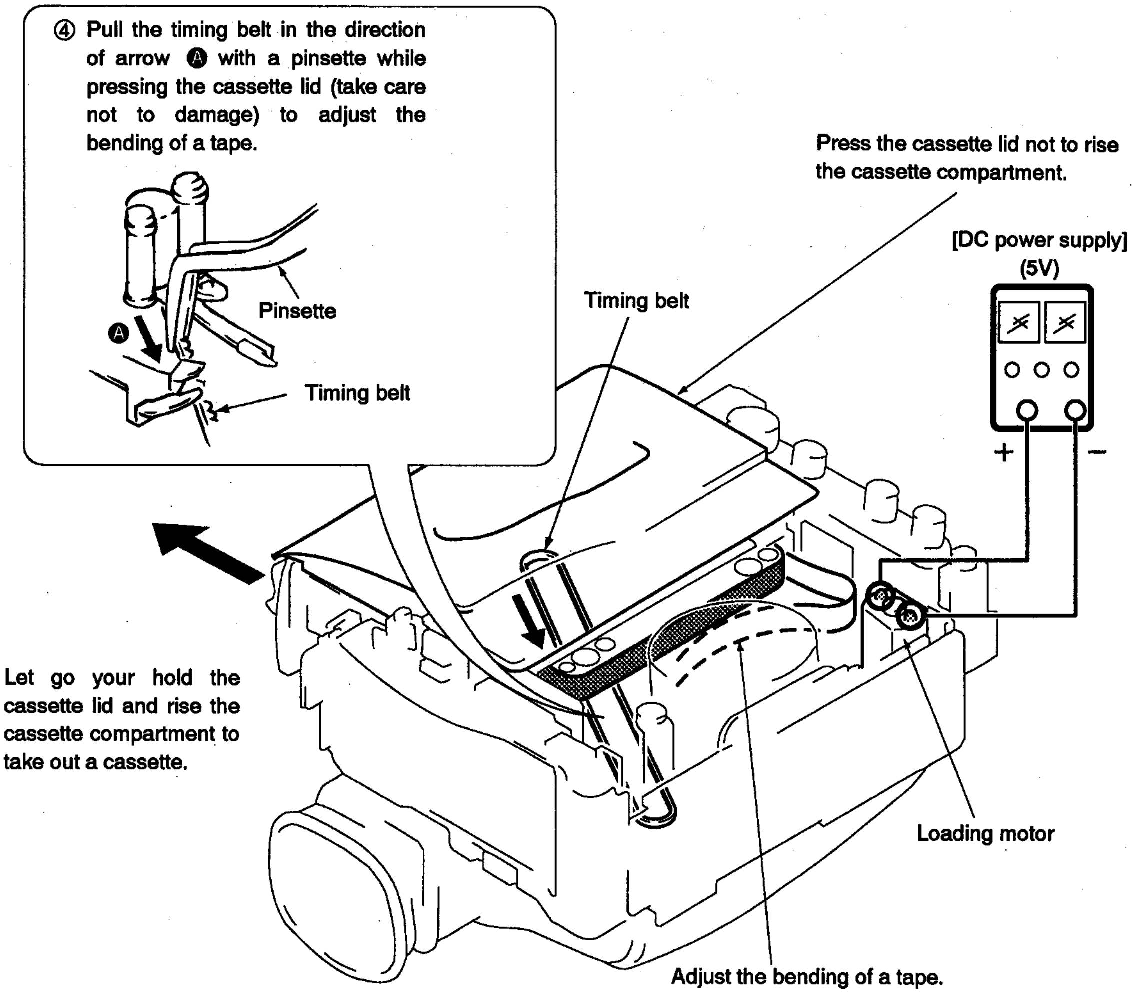
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SERVICE NOTE

TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT).

① Refer to 2-2. to remove the Front panel assembly.
② Refer to 2-3. to remove the Cabient (L) assembly.
③ Add +5V from the DC power supply and unload with a pressing the cassette lid.



④ Pull the timing belt in the direction of arrow Ⓐ with a pinsette while pressing the cassette lid (take care not to damage) to adjust the bending of a tape.

⑤ Let go your hold the cassette lid and rise the cassette compartment to take out a cassette.

Pinsette
Ⓐ
Timing belt
Press the cassette lid not to rise the cassette compartment.
[DC power supply]
(5V)
+
−
Timing belt
Loading motor
Adjust the bending of a tape.

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There is the color reproduction standard frame at the back of the book.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Before you begin

Using this manual

The instructions in this manual are for the two models listed below. Before you start reading this manual and operating the unit, check your model number by looking at the bottom of your camcorder. The CCD-TR910 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TR910 only." As you read through this manual, buttons and settings on the camcorder are shown in capital letters. e.g. Set the POWER switch to CAMERA.
As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Type of differences

Model Number	System	Index	RC time code	Data code	Intelligent accessory shoe	Auto date	Remote commander
CCD-TR710	8 (quasi playback)	—	—	—	—	•	RMT-708
CCD-TR910	Hi8	•	•	•	•	—	RMT-715

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

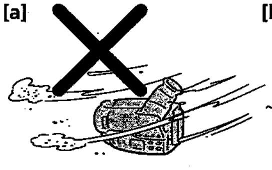
Precaution on copyright

Television programes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

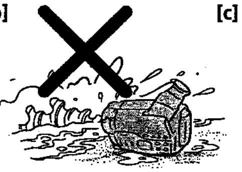
Precautions on camcorder care

- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].**
- **Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].**
- **Never leave the camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight [c].**

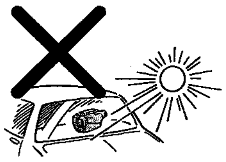
[a]



[b]



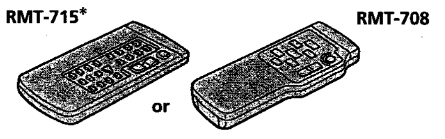
[c]



Checking supplied accessories

Check that the following accessories are supplied with your camcorder.

1



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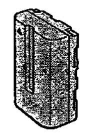

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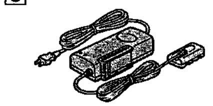

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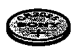

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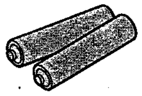

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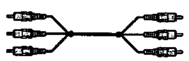

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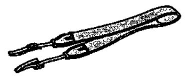

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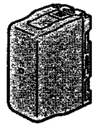


1 **Wireless Remote Commander** (1) (p.75)
* for Hi8 model

2 **NP-F530 Battery pack** (1) (p.6)

3 **AC-V316 AC power adaptor** (1) (p.6, 21)

4 **CR2025 Lithium Battery** (1) (p.56)
The lithium battery is already installed in your camcorder.

5 **Size AA (R6) battery for Remote Commander** (2) (p.75)

6 **A/V connecting cable** (1) (p.16)

7 **Shoulder strap** (1) (p.77)

8 **Battery case** (1) (p.21)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC-V316 AC power adaptor.

This camcorder operates with the "InfoLITHIUM" battery labeled ⓘ InfoLITHIUM such as NP-F530/F730. If you use any other battery to operate your camcorder, the camcorder may not operate or the battery life may be shortened.

"InfoLITHIUM" is a trade mark of Sony Corporation.

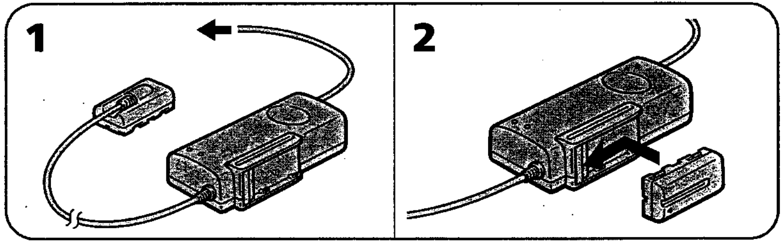
Charging the battery pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the power cord to a wall outlet.

(2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge,** which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour. Unplug the unit from the wall outlet, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.



Charging time

Battery pack	Charging time* (min.)
NP-F530 (supplied)	170 (110)
NP-F730	250 (190)

* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor (full charge). (Lower temperatures require a longer charging time.)

The time required for a normal charge is indicated in parentheses.

Battery life

Battery pack	Continuous recording time* (min.)	Typical recording time** (min.)
NP-F530 (supplied)	120 (105)	70 (65)
NP-F730	270 (240)	160 (145)

Numbers before the parentheses indicate the time when you use a fully charged battery.
Numbers in parentheses indicate the time when you use a normal charged battery.
Battery life will be shorter if you use the camcorder in a cold environment.

* Approximate continuous recording time indoors.

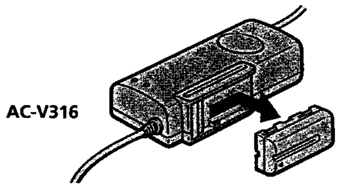
** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Note on remaining battery time indication during recording

When you use the InfoLITHIUM battery pack, remaining battery time is displayed in the viewfinder. However, the indication may not be displayed properly, depending on using conditions and circumstances.

To remove the battery pack

Slide the battery pack in the direction of the arrow.

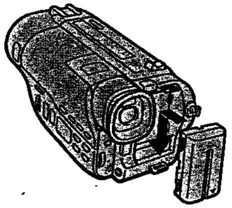


Notes on charging the battery pack

- The CHARGE lamp will remain lit for a while even if the battery pack is removed and the power cord is unplugged after charging the battery pack. This is normal.
- If the CHARGE lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

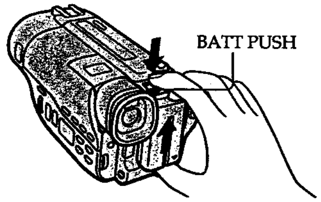
Installing the battery pack

Align the prongs of the battery pack with the receptacles of the camcorder and slide the battery pack down until it catches on the battery release lever and clicks.



To remove the battery pack

While pressing the battery BATT (battery) PUSH button, slide the battery pack in the direction of the arrow.

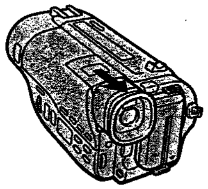


Charging and installing the battery pack

Using the camcorder with the finder slid out or lifted up

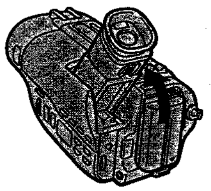
When NP-F730 is installed

When you install NP-F730, slide out the viewfinder for more comfortable camera recording.



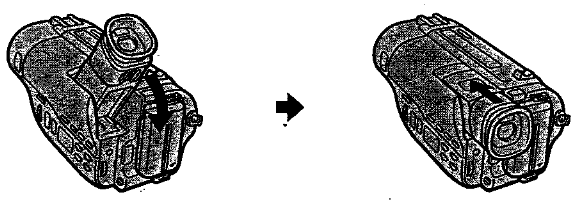
When you record in a low angle

Lift up the viewfinder.



To restore the viewfinder

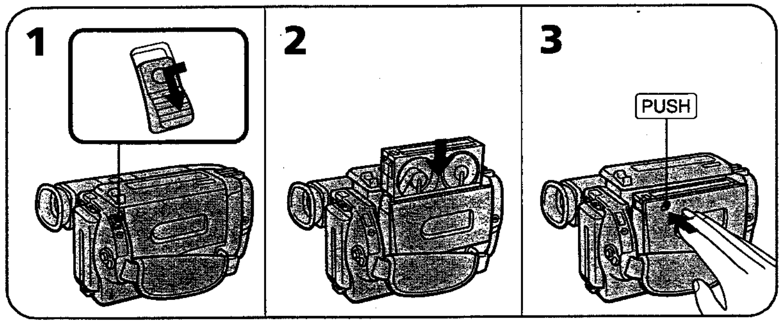
Push the viewfinder down or slide it into the camcorder.



Inserting a cassette

Make sure that the power source is installed.
When you want to record in the Hi8 system, use Hi8 video cassette **Hi8** (CCD-TR910 only).

(1) While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.
(2) Insert a cassette with the window facing out.
(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.

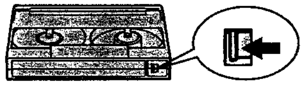


To eject the cassette

While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow.

To prevent accidental erasure

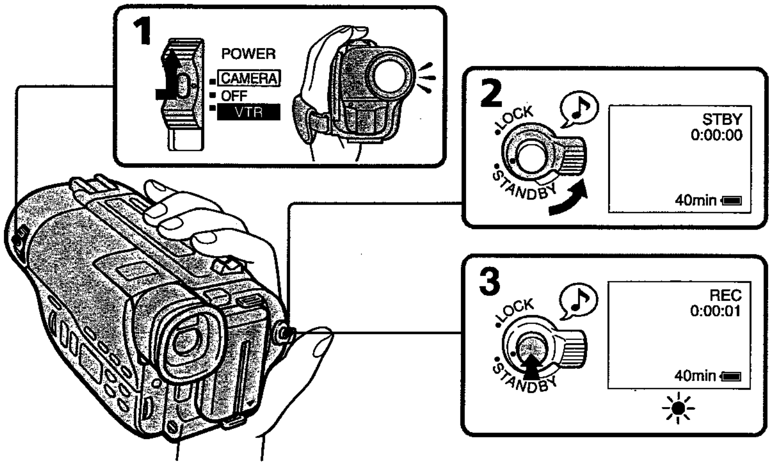
Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the ⊡ and ⏏ indicators flash in the viewfinder, and you cannot record.
To re-record on this tape, slide the tab back out covering the red mark.



Camera recording

Make sure that the power source is installed, a cassette is inserted and that the START/STOP MODE switch is set to ⧗. Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.
When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording. (p.57)
The date is automatically recorded for 10 seconds after you start recording (**AUTO DATE feature**—CCD-TR710 only). This feature works only once a day.
To save battery power, the picture in the viewfinder appears only when you bring your face close to the viewfinder with STANDBY up (**Finder power save**).

(1) While pressing the small green button on the POWER switch, set it to CAMERA.
(2) Turn STANDBY up.
(3) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamps located on the front of the camcorder also lights up.
The AUTO DATE indicator appears. (CCD-TR710 only)



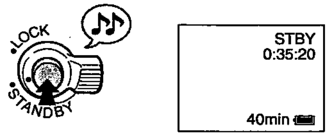
To stop recording momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder (**Standby mode**).

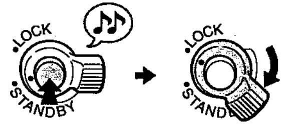
To finish recording [b]

Press START/STOP again. Turn STANDBY down and set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.

[a]

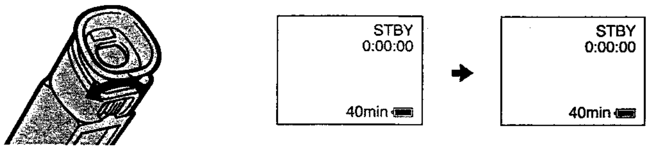


[b]



To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Move the viewfinder lens adjustment lever so that the indicators in the viewfinder come into sharp focus.



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. However, when recording with the Hi8 system, you can record in SP mode only. The playback quality in LP mode will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

Camera recording

Notes on the tape counter

- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on the beep sound

As indicated with ♪ in the illustration, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.

Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Note on the AUTO DATE feature

—CCD-TR710 only

The clock is set to East Coast Standard Time at the factory. You can reset the clock in the menu system. You can change the AUTO DATE settings by selecting ON or OFF in the menu system. The AUTO DATE feature shows the date automatically once a day. However, the date may automatically appear more than once a day when:

- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.
- you set AUTO DATE to OFF once and set it to ON again in the menu system.

Notes on finder power save

- The recording continues even when the picture in the viewfinder disappears during recording.
- If you set VF PW-SAVE to off in the menu system, the picture in the viewfinder does not disappear even when you turn your face away from the viewfinder.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

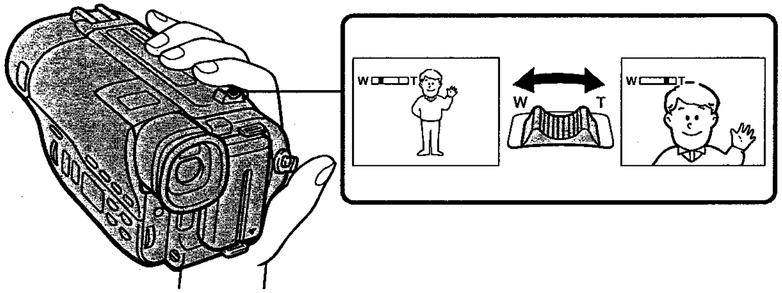
Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.

For more professional-looking recordings, use the zoom function sparingly.

"T" side: for telephoto (subject appears closer)

"W" side: for wide-angle (subject appears farther away)



Zooming speed (Variable speed zooming)

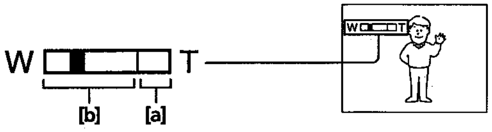
Move the power zoom lever a little for a relatively slow zoom. To speed up the zooming, move the lever further.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about $2\,^{5}/_{8}$ feet (about 80 cm) away from the lens surface in the telephoto position, or about $^{1}/_{2}$ inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom

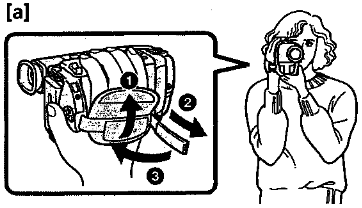
- More than 15x zoom is performed digitally (30x), and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** of the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.



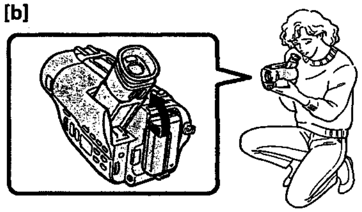
Hints for better shooting

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:

[a]



[b]



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb **[a]**.
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Be sure not to touch the built-in microphone.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting angle. Lift the viewfinder up for recording from a low position **[b]**.

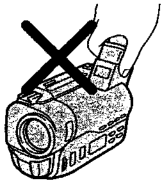
Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.
When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than $^{9}/_{32}$ inch (6.5 mm). Otherwise, the screw may damage the inner parts of the camcorder.

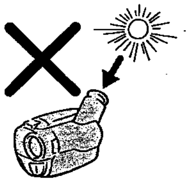
Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder **[c]**.
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window **[d]**.

[c]



[d]



Note on the color viewfinder

- The color viewfinder employs LCD screen made with high-precision technology. However, black points or bright points of light (red, blue or green) may appear constantly on the color viewfinder screen. These points are not recorded on the tape. This is not a malfunction. (Effective dots: more than 99.99%)
- The finder power save function sometimes does not operate due to the effects of sunlight or flouressent light.
- In direct sunlight, the picture in the viewfinder looks brighter by the lighting aperture. The color of the picture in the viewfinder is variable in such a case.

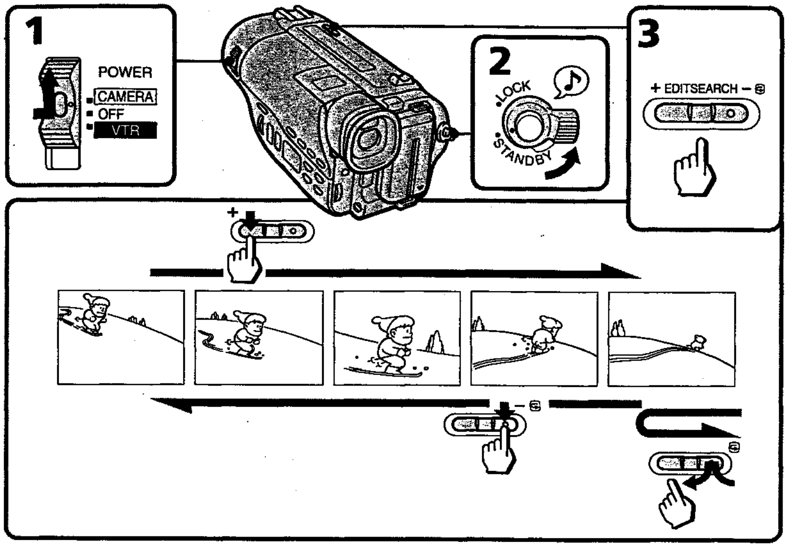
Checking the recorded picture

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

(3) Press the – (⊜) side of EDITSEARCH momentarily; the last few seconds of the recorded portion play back **(Rec Review)**.
Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Edit Search)**.



To stop playback

Release EDITSEARCH.

To begin re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Connections for playback

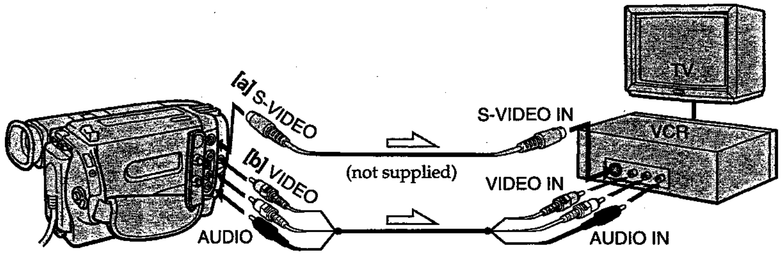
You can use this camcorder as a VCR by connecting it to your TV for playback. There are some ways to connect the camcorder to your TV. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use house current for the power source.

Connecting directly to a VCR/TV with Video/Audio input jacks

When connecting the A/V connecting cable, make sure you connect the plugs to jacks of the same color.

If your TV is already connected to a VCR

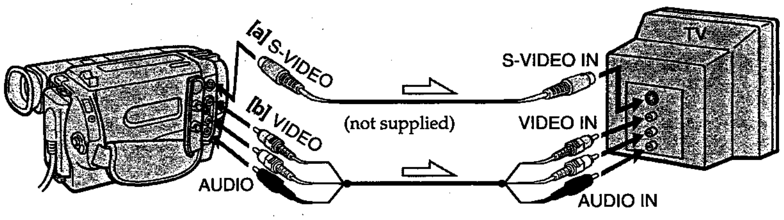
Open the jack cover and connect the camcorder to the LINE IN inputs on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR.
If you are going to connect the camcorder using the S video cable (not supplied) **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]** (CCD-TR910 only).



⇨ : Signal flow

If you connect directly toTV

Open the jack cover and connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.



⇨ : Signal flow

If your VCR or TV is a monaural type

Connect only the white plug for audio on both the camcorder and the VCR or the TV. With this connection, the sound is monaural even on the stereo model.

To connect to a VCR or TV without Video/Audio input jacks

Use the RFU-95UC RFU adaptor (not supplied).

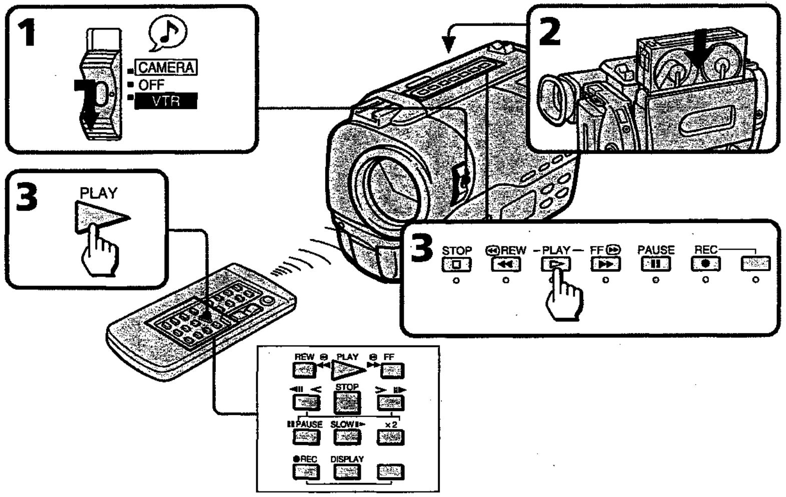
Playing back a tape

You can monitor the playback picture in the viewfinder. You can also monitor a picture on a TV screen, after connecting the camcorder to a TV or VCR.

(1) While pressing the small green button on the POWER switch, set it to VTR. The tape transport buttons light up.

(2) Insert the recorded tape with the window facing out.

(3) Press ▷ to start playback.



To stop playback, press □.
To rewind the tape, press ◀◀.
To fast-forward the tape rapidly, press ▶▶.

Using the remote commander

You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the size AA (R6) batteries.

To monitor the sound while viewing the playback picture in the viewfinder

Connect headphones (not supplied) to the 🎧 jack. (p.72)

Note on the lens cover

The lens cover does not open when the POWER switch is set to VTR. Do not open the lens cover manually. It may cause malfunction.

Various playback modes

To view a still picture (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ▷.

To locate a scene (picture search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)
Press SLOW ❚▶ on the Remote Commander during playback. To resume normal playback, press ▷. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To view the picture at double speed (CCD-TR910 only)
For double speed playback in the reverse direction, press ◀❚❚<, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >❚❚▶, then press x2 during playback. To resume normal playback, press ▷.

To view the picture frame-by-frame (CCD-TR910 only)
Press ◀❚❚< or >❚❚▶ on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ▷.

To change the playback direction (CCD-TR910 only)
Press ◀❚❚< on the Remote Commander for reverse direction or >❚❚▶ on the Remote Commander for forward direction during playback. To resume normal playback, press ▷.

To display the viewfinder screen indicators on the TV
Press DISPLAY on the Remote Commander. To erase the indicators, press DISPLAY again.

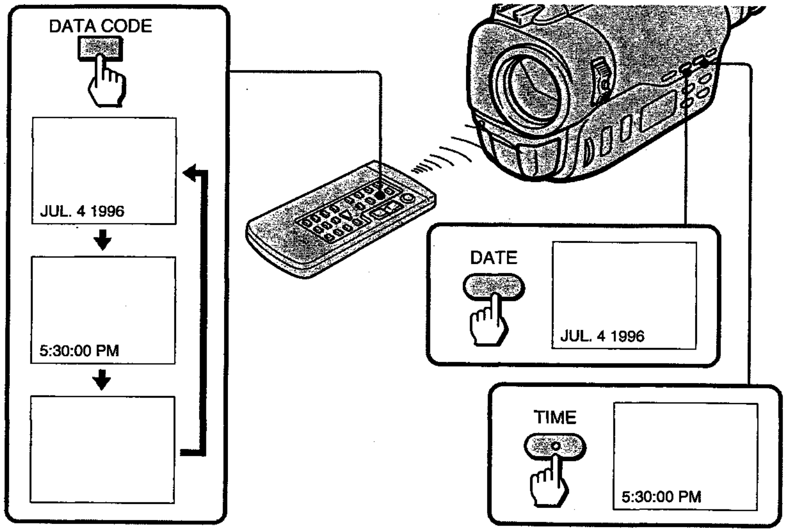
To select the playback sound
Change the "HiFi SOUND" mode setting in the menu system.

Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the center of the screen when you play back a tape in reverse if the RC time code (CCD-TR910 only) or the Data Code (CCD-TR910 only) is displayed on the screen. This is normal.
- You can play back the tapes recorded in the Hi8 video system though the function is very basic (CCD-TR710 only). You cannot get such finely detailed pictures as you could get with the video camera recorder with a Hi8 video system. Noise may result when you play back the tapes recorded in the Hi8 video system on the CCD-TR710 camcorder.

Displaying the date or time when you recorded — data code function —CCD-TR910 only

Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and the display window.

To display the date when you recorded
Press DATE on the camcorder, or press DATA CODE on the Remote Commander (CCD-TR910 only). To make the date disappear, press DATE again or DATA CODE twice.



To display the time when you recorded
Press TIME on the camcorder, or press DATA CODE on the Remote Commander (CCD-TR910 only) twice. To make the time disappear, press it again.

When bars (--:--:--) appear
- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.
- The tape was recorded in LP mode.
- The tape is being played back in variable speed (Slow Playback, etc.)
- An index signal is marked, the RC time code is written, or PCM after recording is made on the tape.

Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack, and the house current. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	House current	Supplied AC power adaptor
Outdoors	Battery pack	InfoLITHIUM battery pack NP-F530 (supplied), NP-F730

Note on power sources

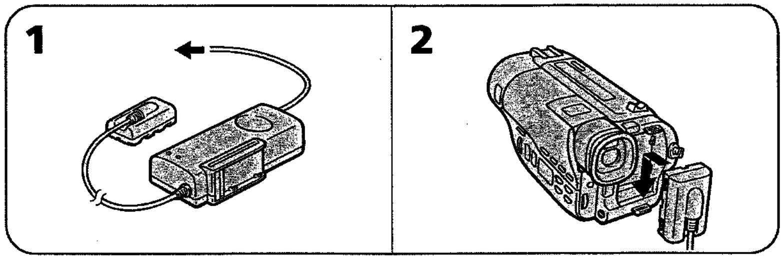
Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Using the house current

To use the supplied AC power adaptor:

(1) Connect the AC power cord to a wall outlet.

(2) Slide the connecting plate down into the guides at the rear of the camcorder until it clicks.



Notes on the VTR/CAMERA lamp

- The VTR/CAMERA lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the VTR/CAMERA lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord.

To remove the connecting plate

Pull out the connecting plate by the plate. Never pull the connecting cord itself.

WARNING

The power cord must only be changed at a qualified service shop.

PRECAUTION

The set is not disconnected from the AC power source (house current) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Using the Battery Case

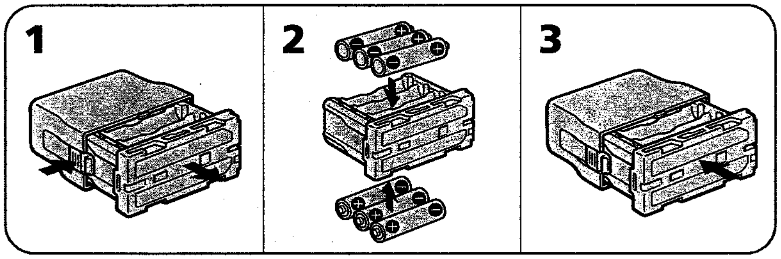
Use the battery case (supplied) and six LR6 (size AA) Sony Alkaline batteries (not supplied).

(1) Remove the battery holder from the battery case.

(2) Insert six new alkaline batteries into the battery holder, following the marking on the holder to be sure the batteries are installed in the correct direction.

(3) Insert the battery holder with the alkaline batteries.

(4) Insert the battery case with the alkaline batteries to the battery mounting surface of the camcorder in the same way as the battery pack (p.7).



Battery Life

Using alkaline batteries at 77°F (25°C).

Model	Continuous recording time	Typical recording time
CCD-TR910	135 min.	80 min.
CCD-TR710	135 min.	80 min.

Notes

- The battery life may be shorter depending on the using environment.
- The above battery lives are estimates. The battery life may be shorter depending on the storage condition of the battery before being purchased and temperature.
- You may not use the battery case in cold environment.

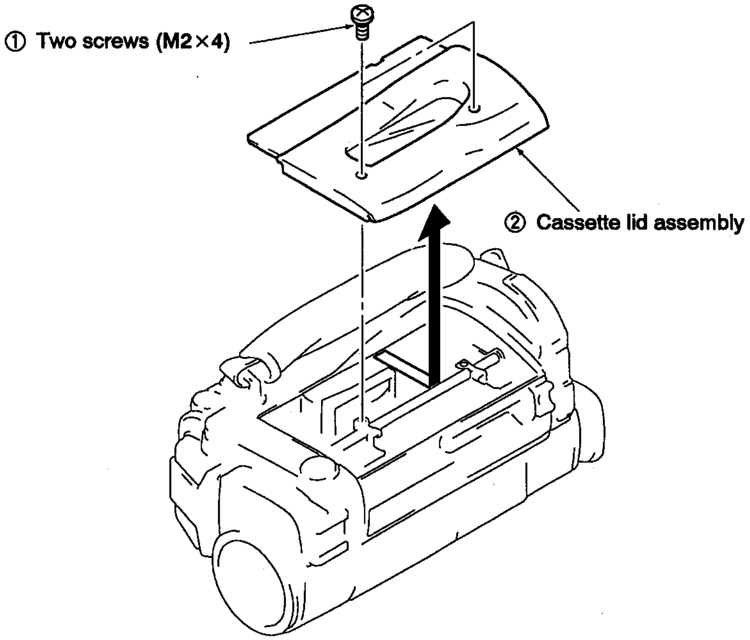
To remove the battery case

The battery case is removed in the same way as the battery pack (p.7).

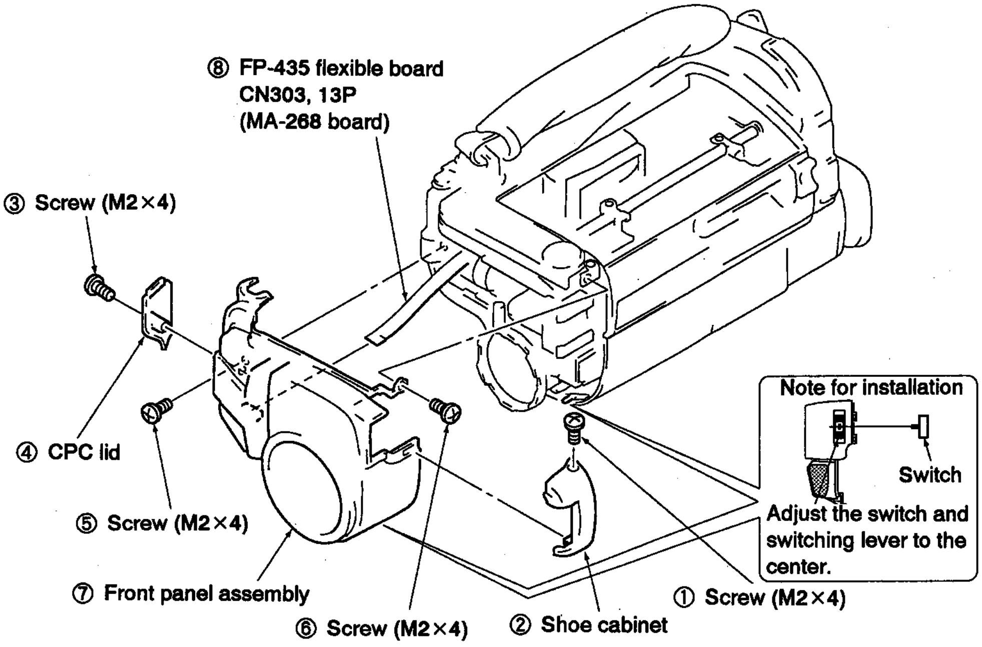
When you replace the batteries, be sure to remove the battery case from the camcorder to prevent malfunction.

SECTION 2
DISASSEMBLY

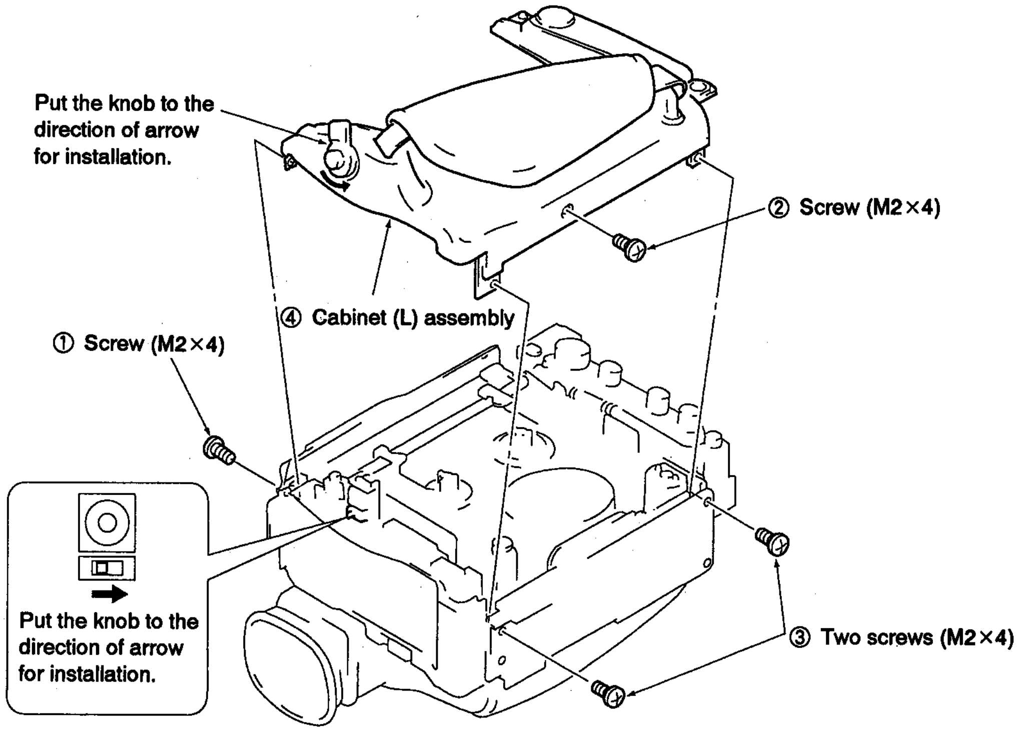
2-1. REMOVAL OF CASSETTE LID ASSEMBLY


① Two screws (M2×4)
② Cassette lid assembly

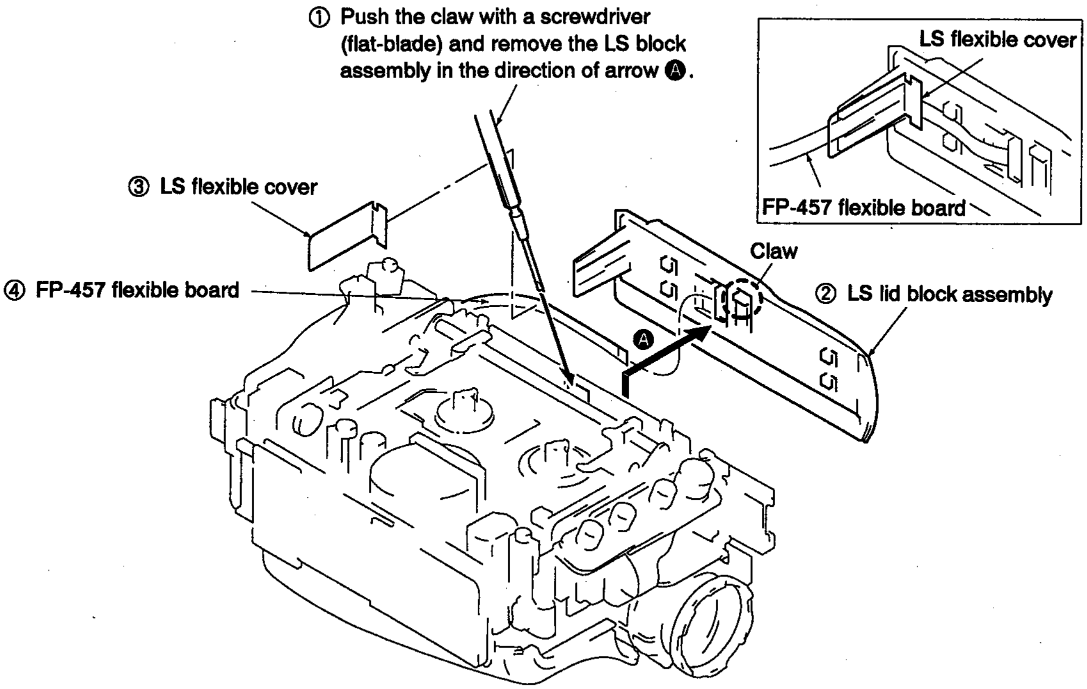
2-2. REMOVAL OF FRONT PANEL ASSEMBLY


⑧ FP-435 flexible board
CN303, 13P
(MA-268 board)
③ Screw (M2×4)
④ CPC lid
⑤ Screw (M2×4)
⑦ Front panel assembly
⑥ Screw (M2×4)
② Shoe cabinet
① Screw (M2×4)
Note for installation
Switch
Adjust the switch and switching lever to the center.

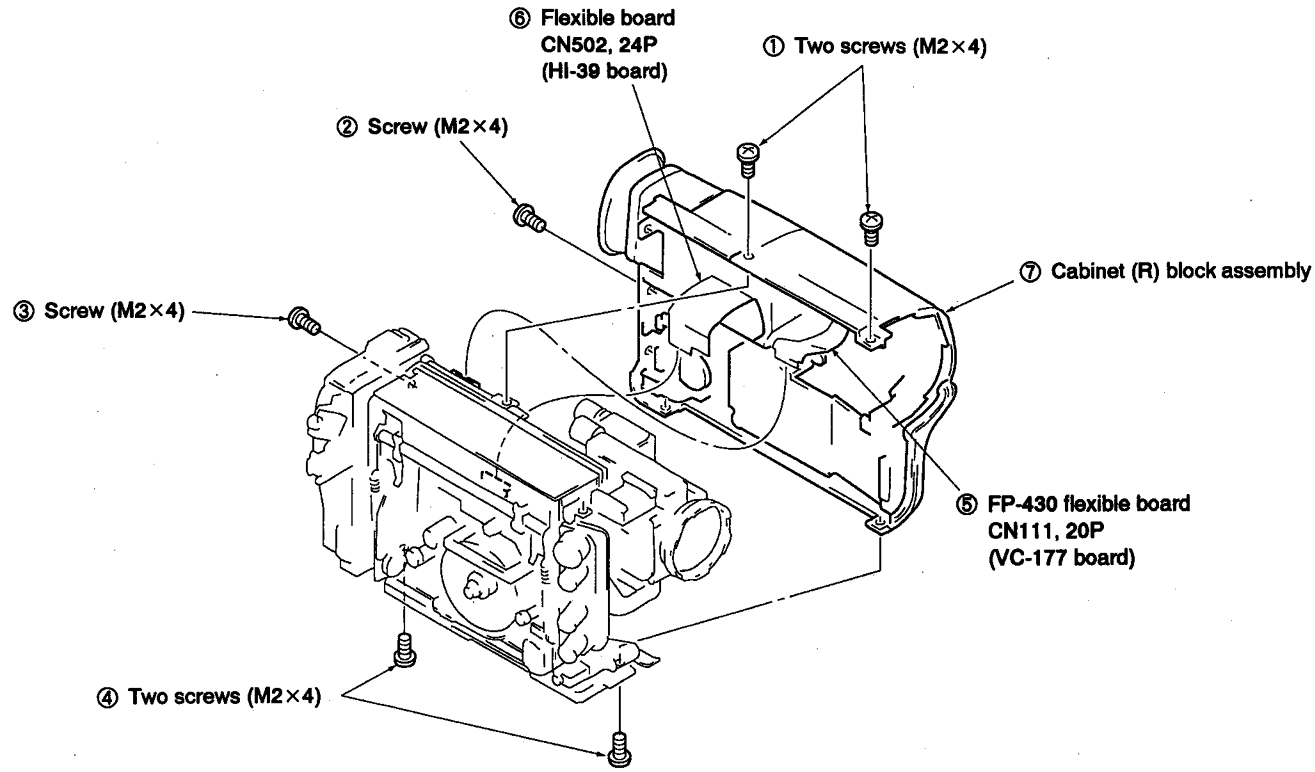
2-3. REMOVAL OF CABINET (L) ASSEMBLY


Put the knob to the direction of arrow for installation.
② Screw (M2×4)
④ Cabinet (L) assembly
① Screw (M2×4)
Put the knob to the direction of arrow for installation.
③ Two screws (M2×4)

2-4. REMOVAL OF LS LID BLOCK ASSEMBLY

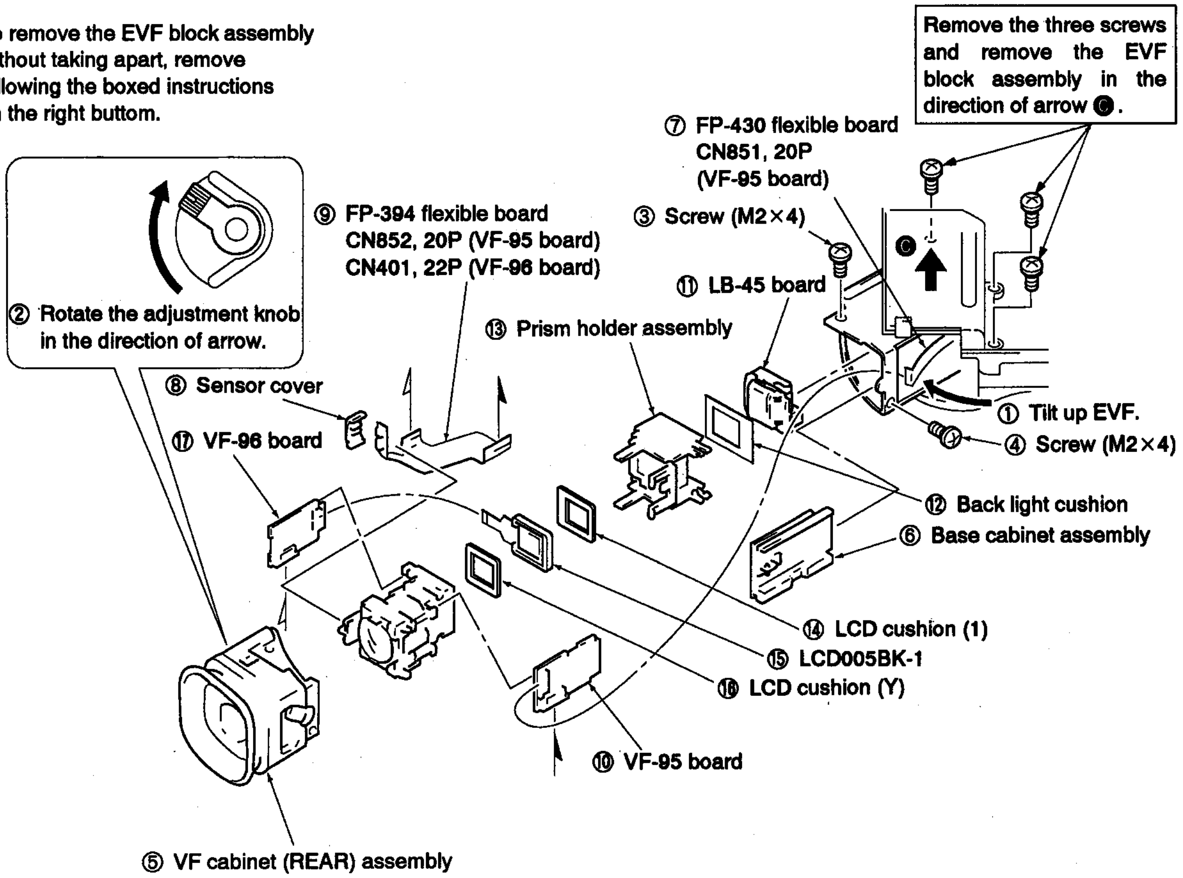

① Push the claw with a screwdriver (flat-blade) and remove the LS block assembly in the direction of arrow Ⓐ.
LS flexible cover
③ LS flexible cover
FP-457 flexible board
Claw
④ FP-457 flexible board
② LS lid block assembly
Ⓐ

2-5. REMOVAL OF CABINET (R) ASSEMBLY


⑥ Flexible board
CN502, 24P
(HI-39 board)
① Two screws (M2×4)
② Screw (M2×4)
⑦ Cabinet (R) block assembly
③ Screw (M2×4)
⑤ FP-430 flexible board
CN111, 20P
(VC-177 board)
④ Two screws (M2×4)

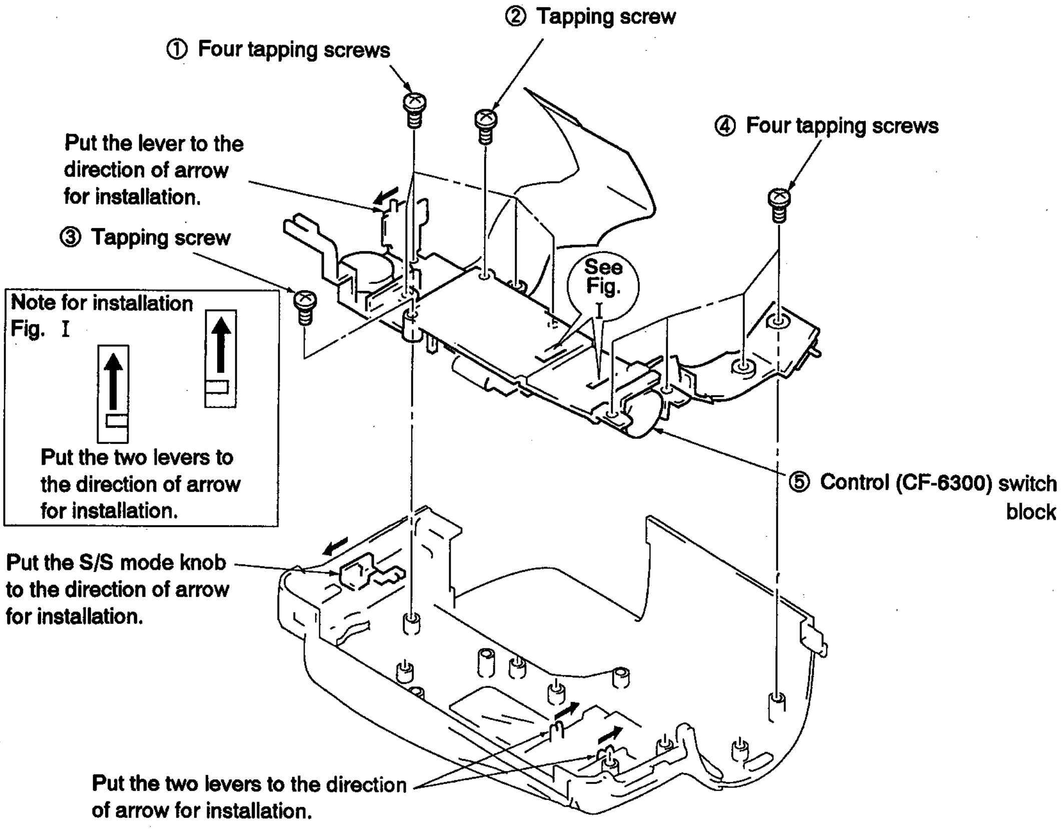
2-6. REMOVAL OF EVF BLOCK ASSEMBLY

Note: To remove the EVF block assembly without taking apart, remove following the boxed instructions on the right buttom.

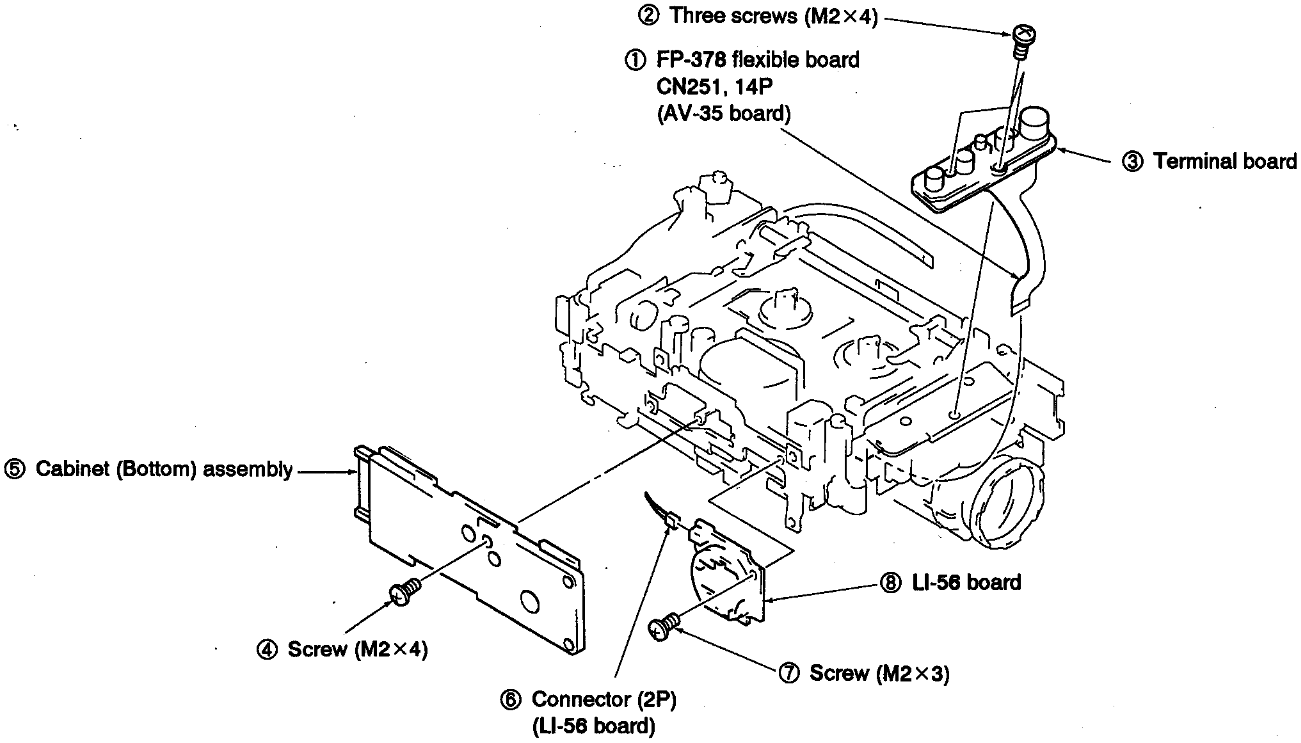

Remove the three screws and remove the EVF block assembly in the direction of arrow ●.

⑦ FP-430 flexible board
CN851, 20P
(VF-95 board)
② Rotate the adjustment knob in the direction of arrow.
⑨ FP-394 flexible board
CN852, 20P (VF-95 board)
CN401, 22P (VF-96 board)
③ Screw (M2×4)
⑪ LB-45 board
⑬ Prism holder assembly
⑧ Sensor cover
⑰ VF-96 board
① Tilt up EVF.
④ Screw (M2×4)
⑫ Back light cushion
⑥ Base cabinet assembly
⑭ LCD cushion (1)
⑮ LCD005BK-1
⑯ LCD cushion (Y)
⑩ VF-95 board
⑤ VF cabinet (REAR) assembly

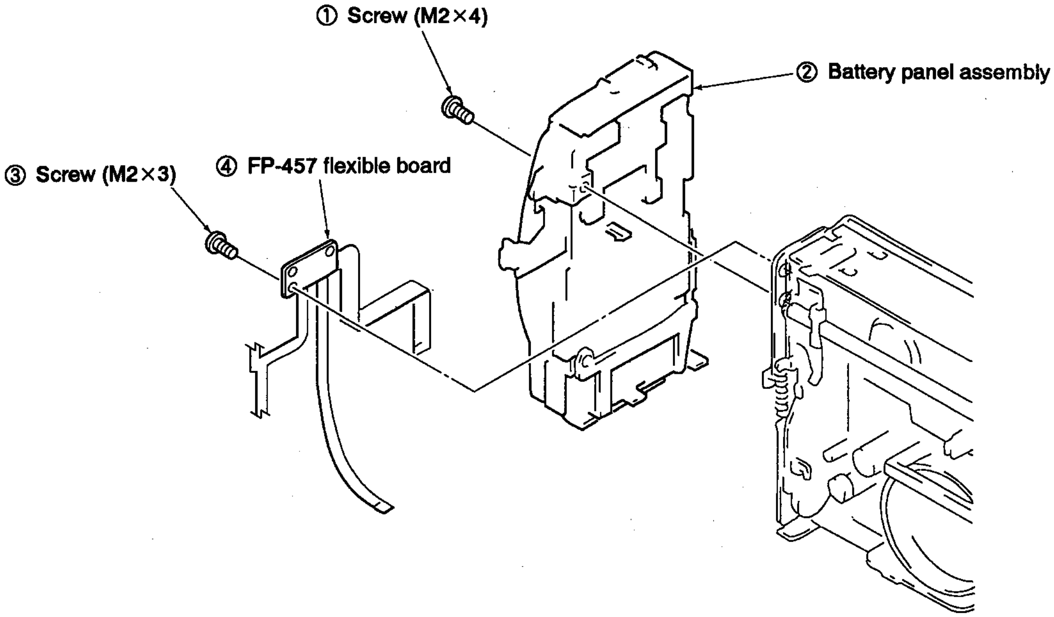
2-7. REMOVAL OF CONTROL (CF-6300) SWITCH BLOCK


② Tapping screw
① Four tapping screws
④ Four tapping screws
Put the lever to the direction of arrow for installation.
③ Tapping screw
See Fig. I
Note for installation
Fig. I
Put the two levers to the direction of arrow for installation.
⑤ Control (CF-6300) switch block
Put the S/S mode knob to the direction of arrow for installation.
Put the two levers to the direction of arrow for installation.

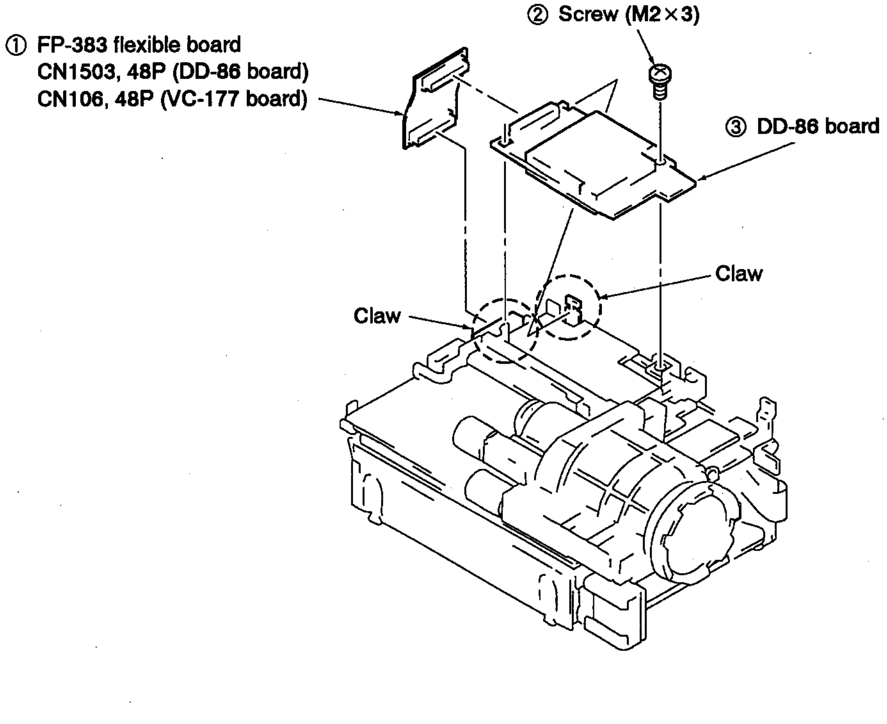
2-8. REMOVAL OF CABINET (BOTTOM) ASSEMBLY, LI-56 BOARD AND TERMINAL BOARD


② Three screws (M2×4)
① FP-378 flexible board
CN251, 14P
(AV-35 board)
③ Terminal board
⑤ Cabinet (Bottom) assembly
⑧ LI-56 board
④ Screw (M2×4)
⑦ Screw (M2×3)
⑥ Connector (2P)
(LI-56 board)

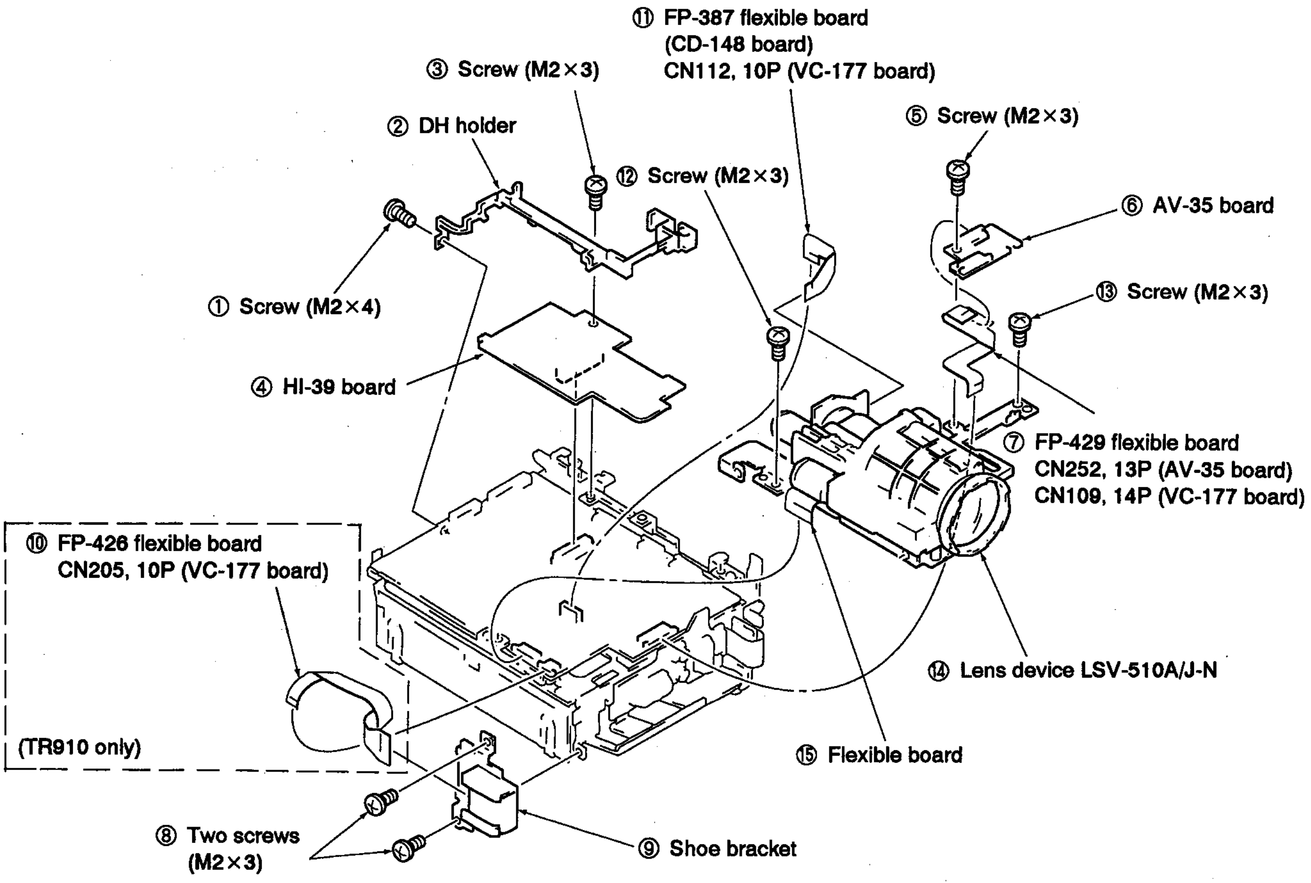
2-9. REMOVAL OF BATTERY PANEL ASSEMBLY


① Screw (M2×4)
② Battery panel assembly
③ Screw (M2×3)
④ FP-457 flexible board

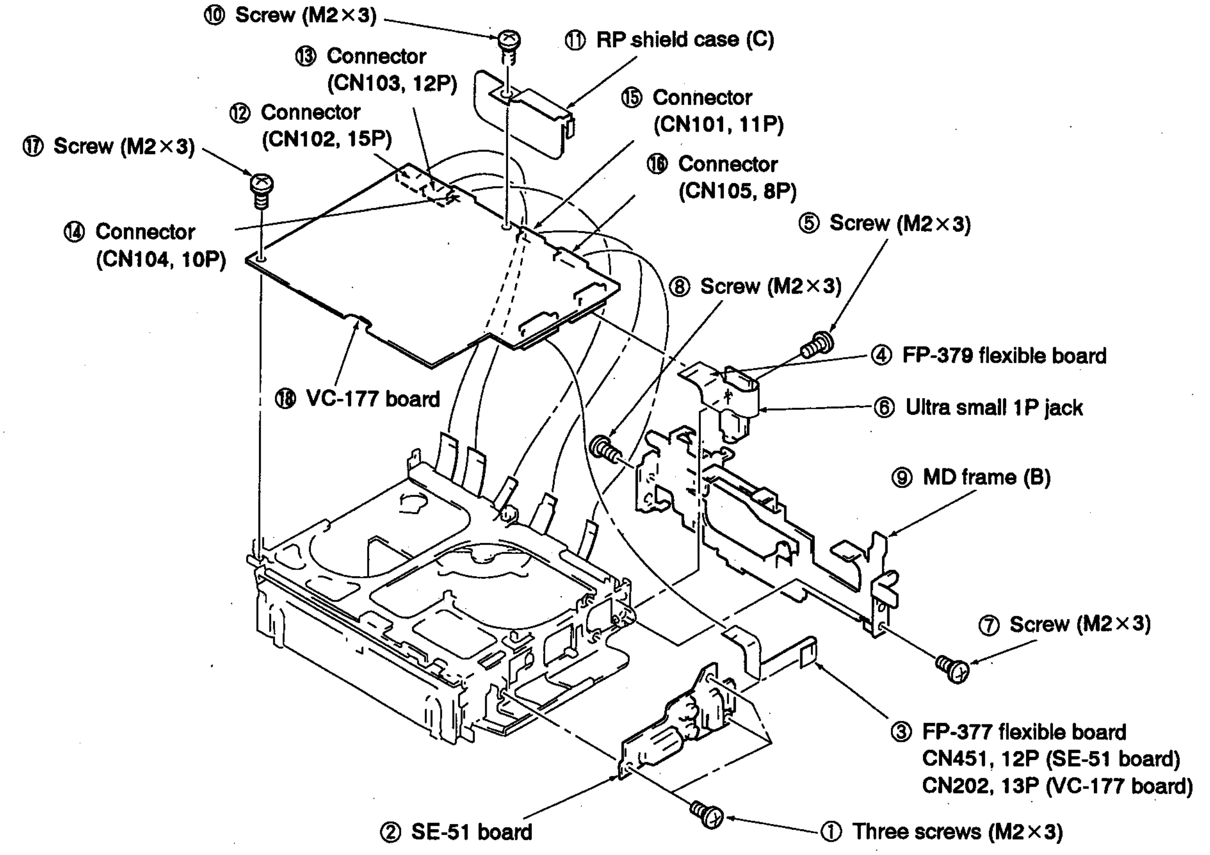
2-10. REMOVAL OF DD-86 BOARD


② Screw (M2×3)
① FP-383 flexible board
CN1503, 48P (DD-86 board)
CN106, 48P (VC-177 board)
③ DD-86 board
Claw
Claw

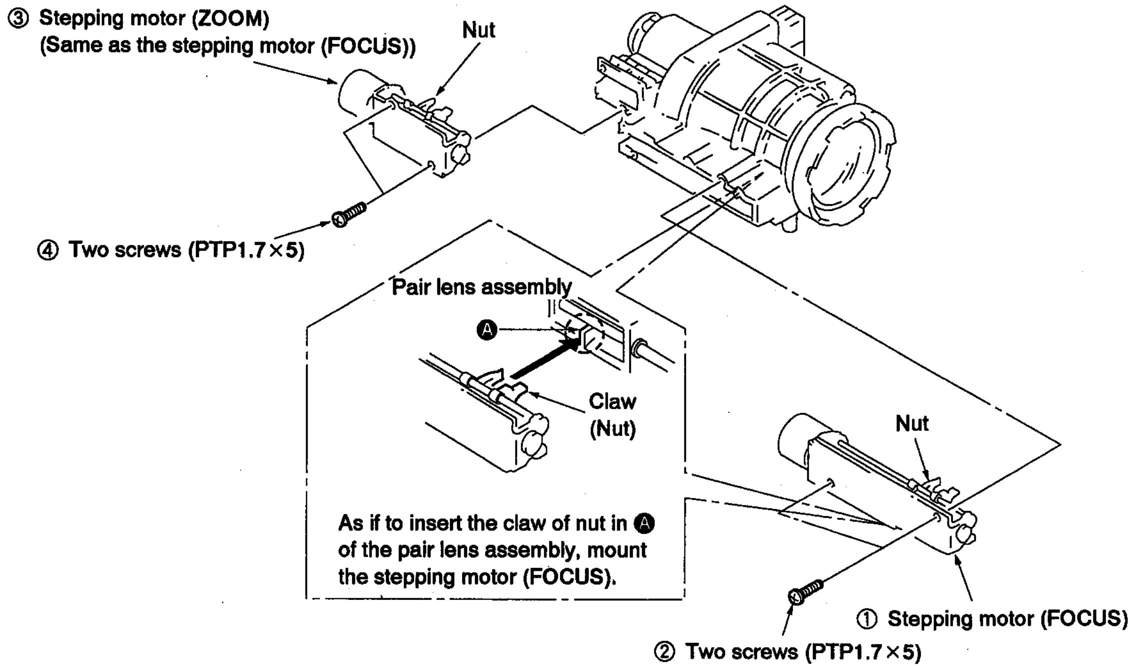
2-11. REMOVAL OF LENS DEVICE LSV-510A/J-N, HI-39 BOARD AND AV-35 BOARD


⑪ FP-387 flexible board
(CD-148 board)
CN112, 10P (VC-177 board)
③ Screw (M2×3)
⑤ Screw (M2×3)
② DH holder
⑫ Screw (M2×3)
⑥ AV-35 board
⑬ Screw (M2×3)
① Screw (M2×4)
④ HI-39 board
⑦ FP-429 flexible board
CN252, 13P (AV-35 board)
CN109, 14P (VC-177 board)
⑩ FP-426 flexible board
CN205, 10P (VC-177 board)
⑭ Lens device LSV-510A/J-N
(TR910 only)
⑮ Flexible board
⑧ Two screws
(M2×3)
⑨ Shoe bracket

2-12. REMOVAL OF SE-51 BOARD AND VC-177 BOARD


⑩ Screw (M2×3)
⑪ RP shield case (C)
⑬ Connector
(CN103, 12P)
⑮ Connector
(CN101, 11P)
⑫ Connector
(CN102, 15P)
⑰ Screw (M2×3)
⑯ Connector
(CN105, 8P)
⑭ Connector
(CN104, 10P)
⑤ Screw (M2×3)
⑧ Screw (M2×3)
④ FP-379 flexible board
⑱ VC-177 board
⑥ Ultra small 1P jack
⑨ MD frame (B)
⑦ Screw (M2×3)
③ FP-377 flexible board
CN451, 12P (SE-51 board)
CN202, 13P (VC-177 board)
② SE-51 board
① Three screws (M2×3)

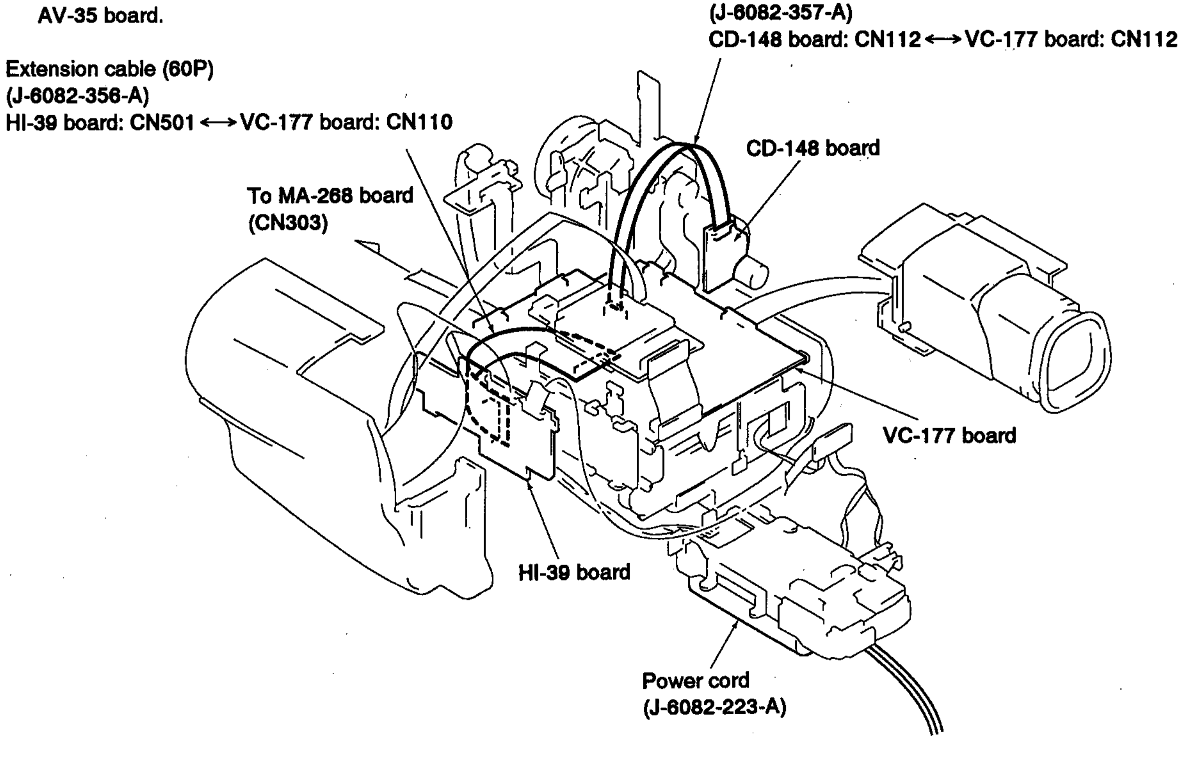
2-13. MOUTING OF STEPPING MOTOR (FOCUS/ZOOM)


③ Stepping motor (ZOOM)
(Same as the stepping motor (FOCUS))
Nut
④ Two screws (PTP1.7×5)
Pair lens assembly
A
Claw
(Nut)
Nut
As if to insert the claw of nut in A
of the pair lens assembly, mount
the stepping motor (FOCUS).
① Stepping motor (FOCUS)
② Two screws (PTP1.7×5)

2-14. SERVICE POSITION

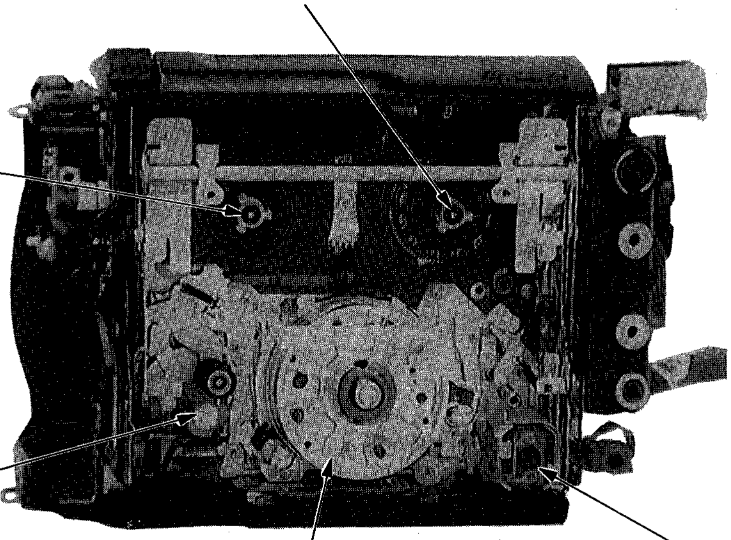
Note: When the following parts are removed, be sure to remember the connection parts becuase those connectors and etc. are needed to connect later on.

① Refer to 2-2. to remove the front panel assembly.
② Refer to 2-3. to remove the cabinet (L) assembly.
③ Refer to 2-5. to remove the cabinet (R) assembly.
④ Refer to 2-6. to remove the EVF block assembly.
⑤ Refer to 2-8. to remove the cabinet (Bottom) assembly.
⑥ Refer to 2-9. to remove the battery panel assembly and FP-457 flexible board.
⑦ Refer to 2-10. to remove the DD-86 board.
⑧ Refer to 2-11. to remove the lens device, HI-39 board and AV-35 board.


Extension cable (16P)
(J-6082-357-A)
CD-148 board: CN112←→VC-177 board: CN112
Extension cable (60P)
(J-6082-356-A)
HI-39 board: CN501←→VC-177 board: CN110
CD-148 board
To MA-268 board
(CN303)
VC-177 board
HI-39 board
Power cord
(J-6082-223-A)

2-15. INTERNAL VIEWS

— Left side —



S reel table assembly
X-3945-397-1

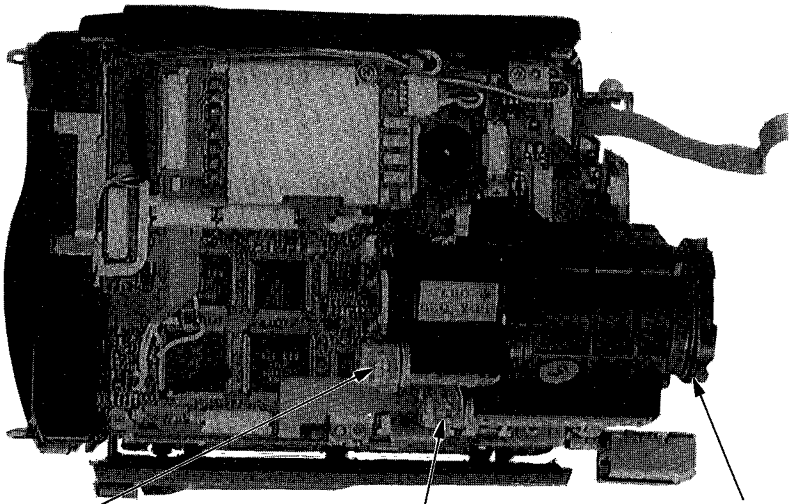
T reel table assembly
X-3945-398-1

M902
DC motor (SCE-0601A)
(Capstan)
8-835-531-01

M901
Drum assembly
A-7048-831-A (DGH-0D1A-R)

M903
DC motor (Loading)
X-3945-401-1

— Right side —

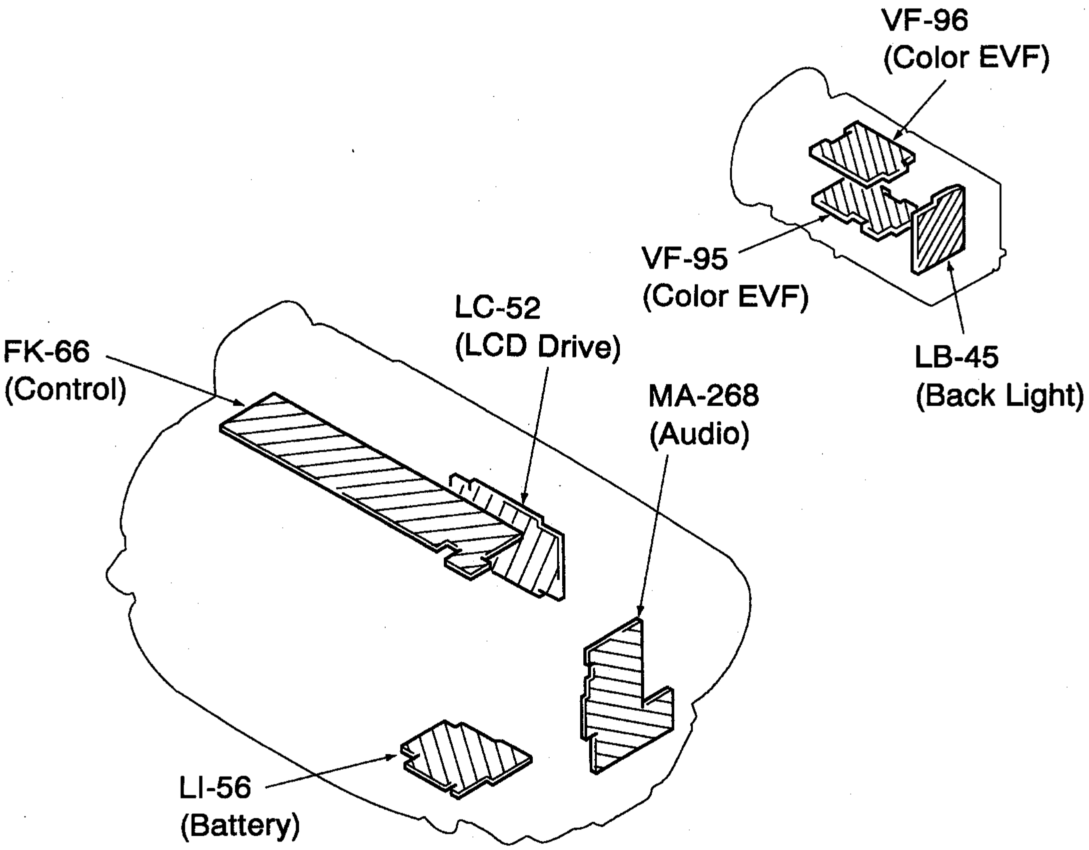


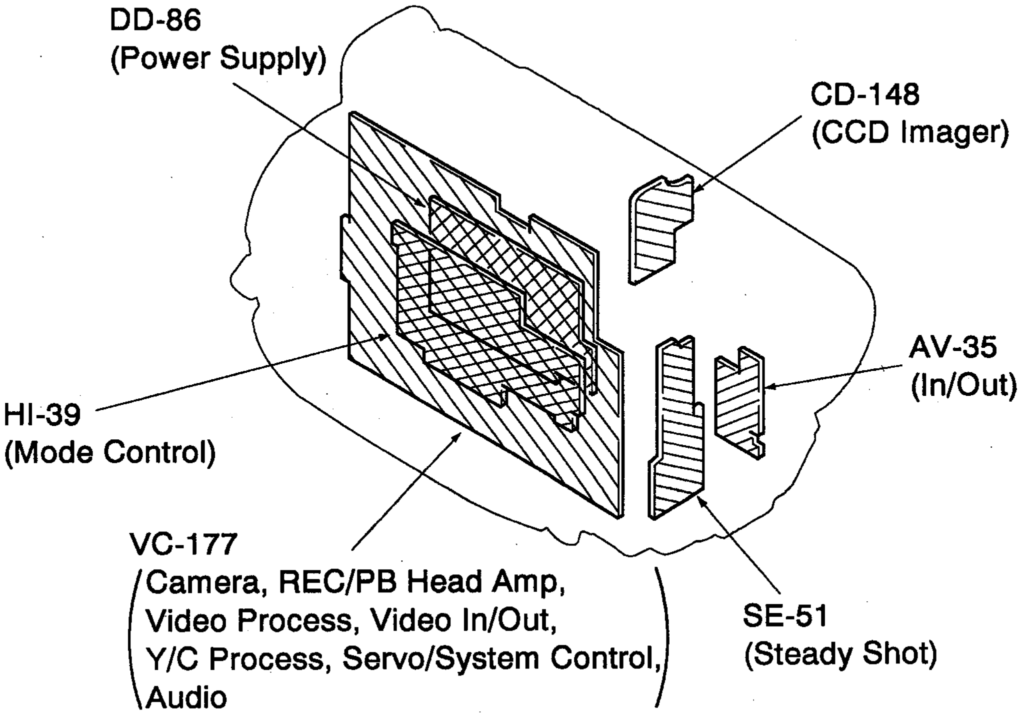
M906
Stepping motor (Zoom)
1-698-759-01

M905
Stepping motor (Focus)
1-698-760-01

Lens device (LSV-510/J-N)
8-848-710-01

2-16. CIRCUIT BOARDS LOCATION


VF-96
(Color EVF)
FK-66
(Control)
LC-52
(LCD Drive)
VF-95
(Color EVF)
MA-268
(Audio)
LB-45
(Back Light)
LI-56
(Battery)


DD-86
(Power Supply)
CD-148
(CCD Imager)
AV-35
(In/Out)
HI-39
(Mode Control)
VC-177
(Camera, REC/PB Head Amp, Video Process, Video In/Out, Y/C Process, Servo/System Control, Audio)
SE-51
(Steady Shot)

English
96D0936-1
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(Osaki East)

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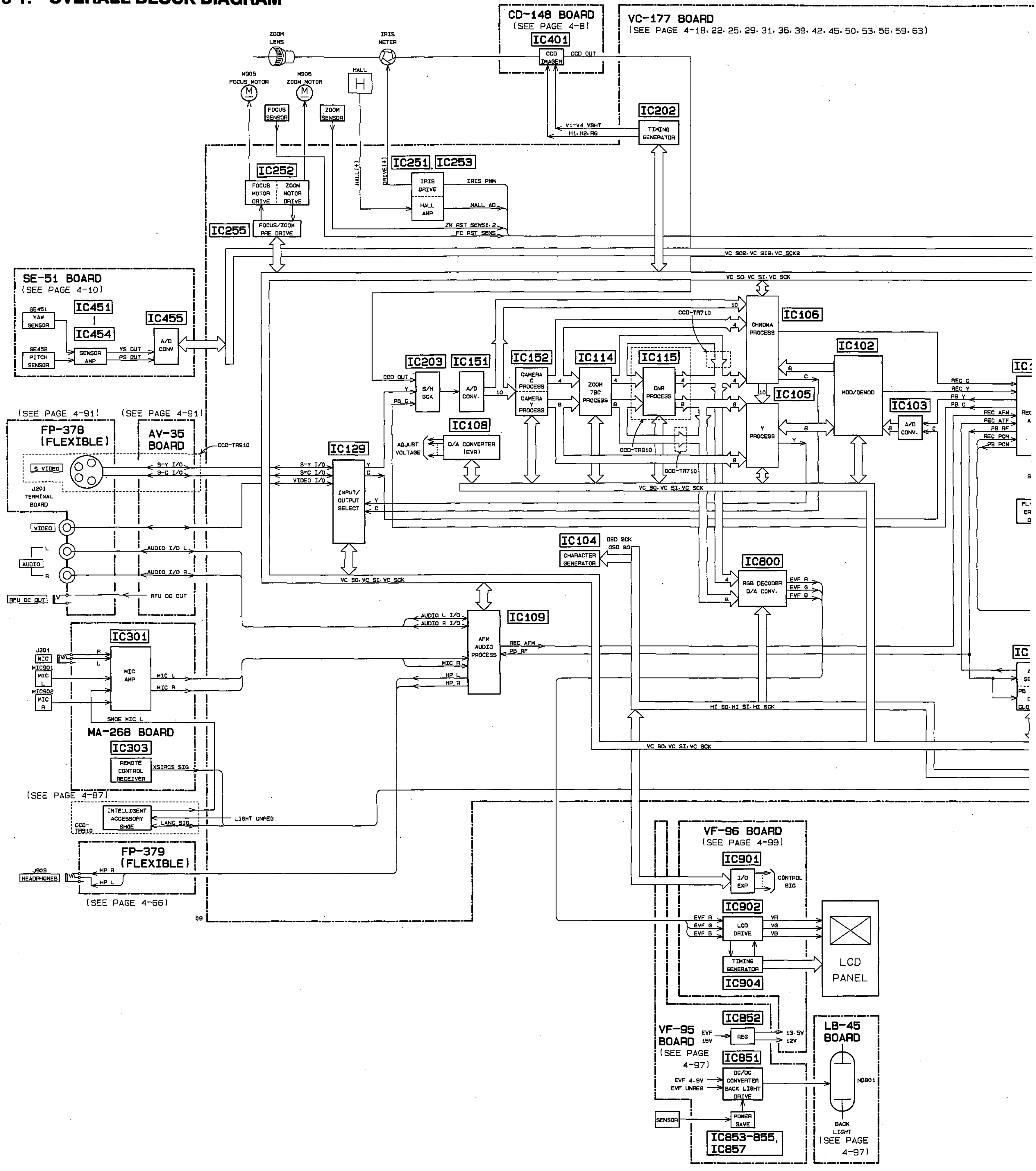
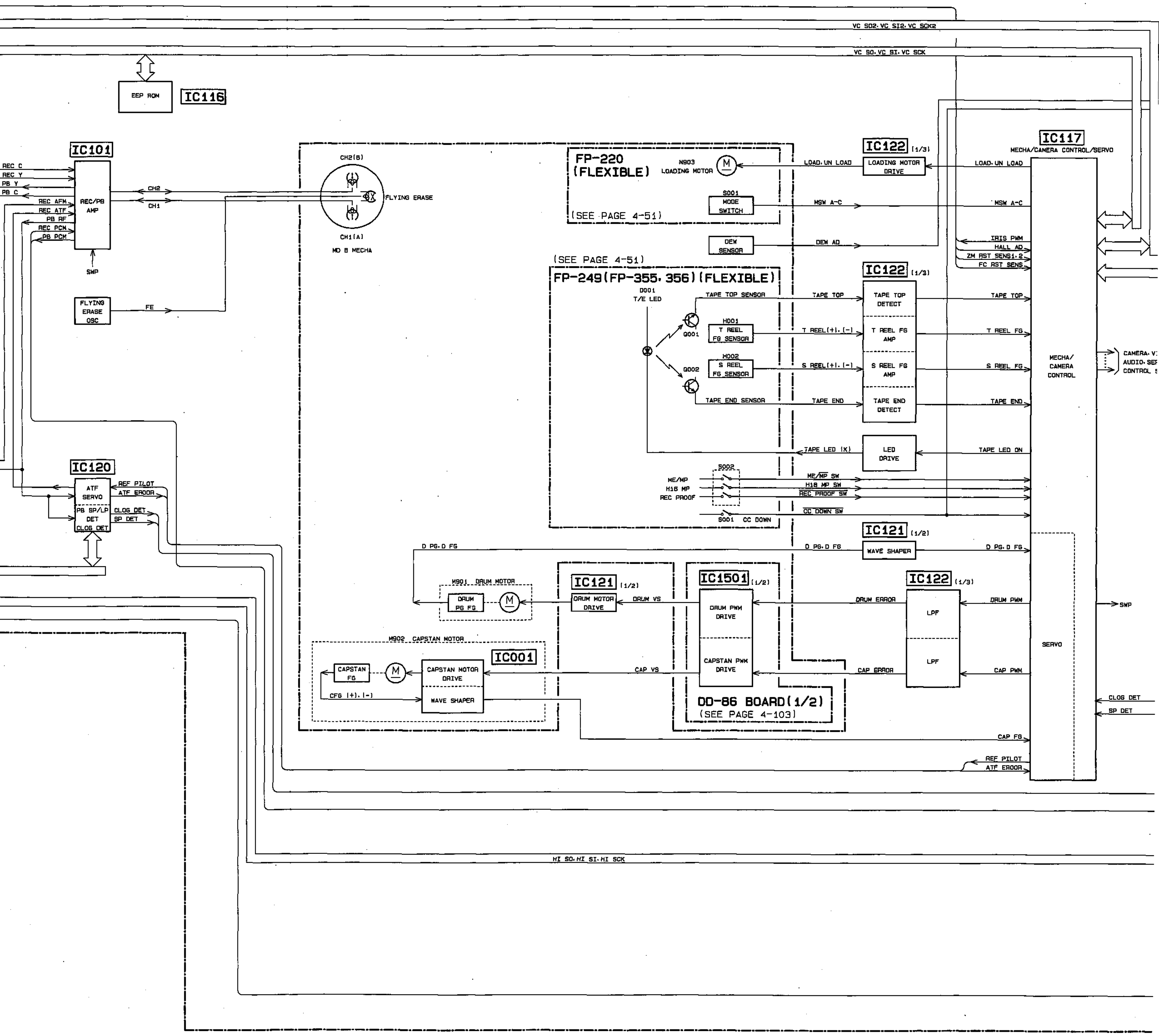
Sony Corporation
Personal A&V Products Company

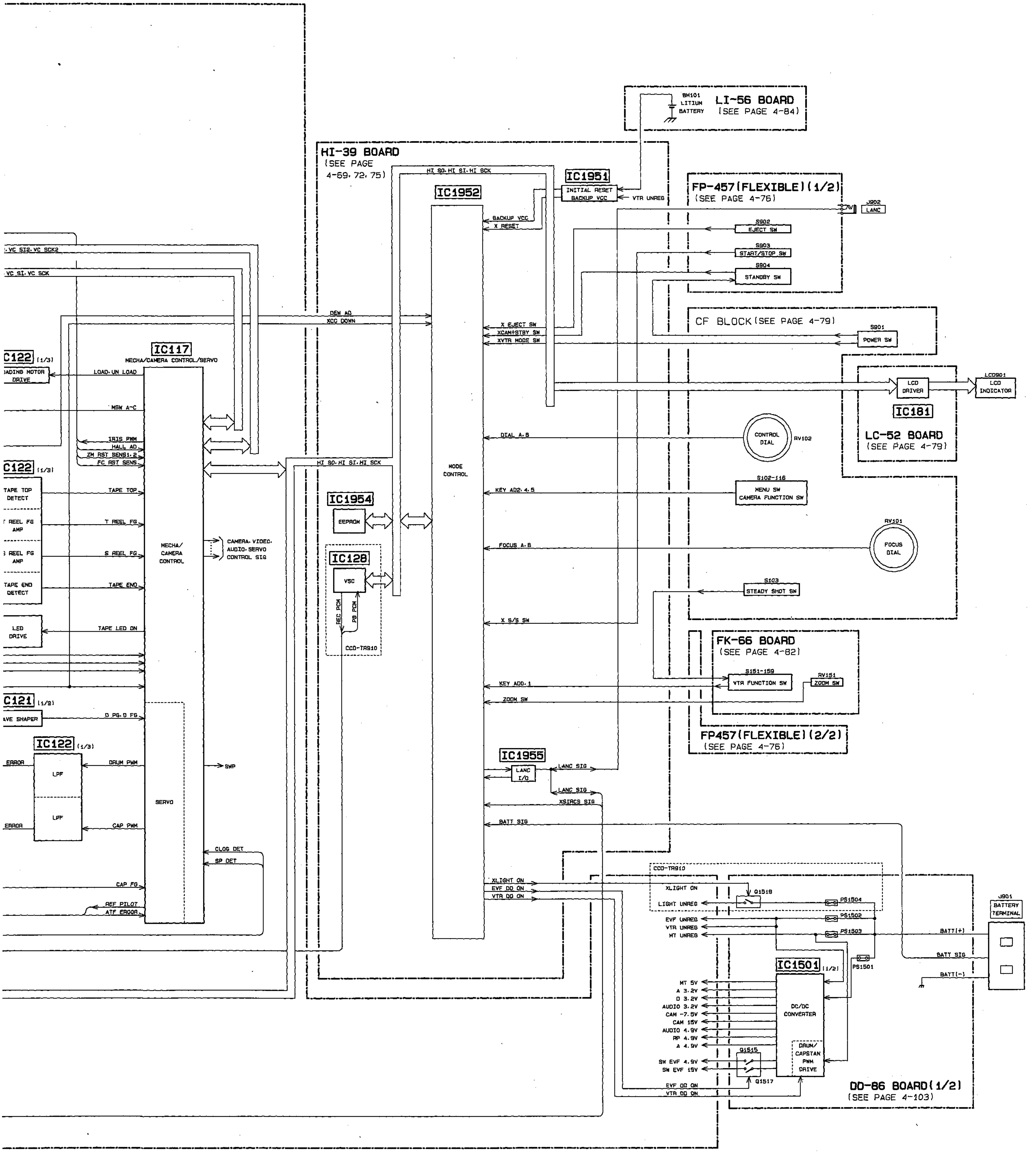
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

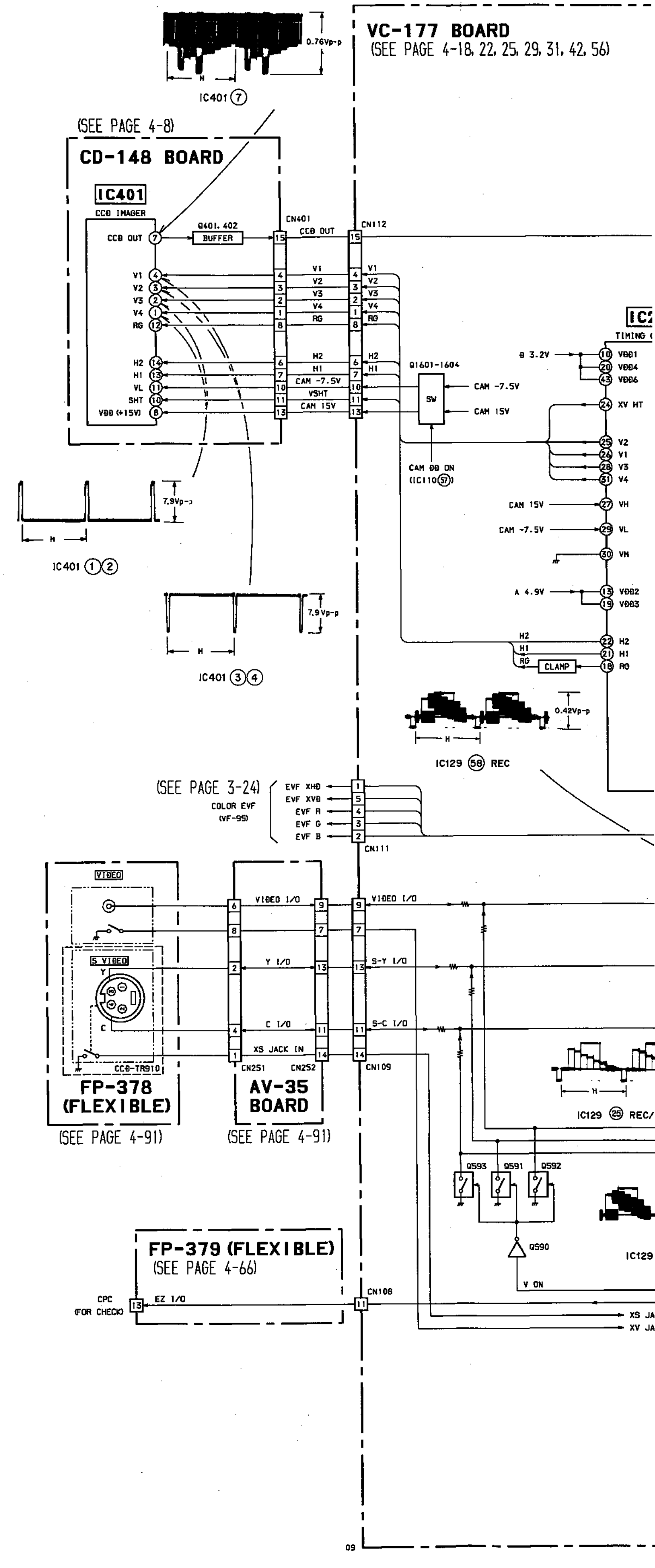


CD-148 BOARD
(SEE PAGE 4-8)
IC401
CCD IMAGER
CCD OUT
VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 29, 31, 36, 39, 42, 45, 50, 53, 56, 59, 63)
ZOOM LENS
IRIS METER
HALL
M905 FOCUS MOTOR
M906 ZOOM MOTOR
FOCUS SENSOR
ZOOM SENSOR
IC202
TIMING GENERATOR
V1-V4 VSHT
H1, H2, RG
IC252
FOCUS MOTOR DRIVE
ZOOM MOTOR DRIVE
IC251
IC253
IRIS DRIVE
HALL AMP
HALL(+)
DRIVE(+)
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
IC255
FOCUS/ZOOM PRE DRIVE
VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
SE-51 BOARD
(SEE PAGE 4-10)
IC451
IC454
IC455
SE451 YAW SENSOR
SE452 PITCH SENSOR
SENSOR AMP
YS OUT
PS OUT
A/D CONV
CCD-TR710
IC106
CHROMA PROCESS
IC102
MOD/DEMOD
IC203
S/H GCA
IC151
A/D CONV.
IC152
CAMERA C PROCESS
CAMERA Y PROCESS
IC114
ZOOM TBC PROCESS
IC115
CNR PROCESS
IC105
Y PROCESS
IC103
A/D CONV.
CCD OUT
PB C
REC C
REC Y
PB Y
PB C
REC AFM
REC ATF
PB RF
REC PCM
PB PCM
IC108
D/A CONVERTER (EVR)
ADJUST VOLTAGE
CCD-TR910
CCD-TR710
(SEE PAGE 4-91)
(SEE PAGE 4-91)
FP-378 (FLEXIBLE)
AV-35 BOARD
CCD-TR910
S VIDEO
J201 TERMINAL BOARD
S-Y I/O
S-C I/O
VIDEO I/O
IC129
INPUT/OUTPUT SELECT
VIDEO
AUDIO
L
R
AUDIO I/O L
AUDIO I/O R
RFU DC OUT
RFU DC OUT
IC104
CHARACTER GENERATOR
OSD SCK
OSD SO
IC800
RGB DECODER D/A CONV.
EVF R
EVF G
EVF B
IC109
AFM AUDIO PROCESS
AUDIO L I/O
AUDIO R I/O
REC AFM
PB RF
MIC R
HP L
HP R
IC301
J301 MIC
MIC901 MIC L
MIC902 MIC R
MIC AMP
MIC L
MIC R
SHOE MIC L
MA-268 BOARD
IC303
REMOTE CONTROL RECEIVER
XSIRCS SIG
HI SO, HI SI, HI SCK
VC SO, VC SI, VC SCK
(SEE PAGE 4-87)
INTELLIGENT ACCESSORY SHOE
CCD-TR910
LANC SIG
LIGHT UNREG
FP-379 (FLEXIBLE)
J903 HEADPHONES
HP R
HP L
(SEE PAGE 4-66)
09
VF-96 BOARD
(SEE PAGE 4-99)
IC901
I/O EXP
CONTROL SIG
IC902
LCD DRIVE
EVF R
EVF G
EVF B
VR
VG
VB
TIMING GENERATOR
IC904
LCD PANEL
VF-95 BOARD
(SEE PAGE 4-97)
IC852
REG
EVF 15V
13.5V
12V
IC851
DC/DC CONVERTER BACK LIGHT DRIVE
EVF 4.9V
EVF UNREG
SENSOR
POWER SAVE
IC853-855, IC857
LB-45 BOARD
ND801
BACK LIGHT
(SEE PAGE 4-97)

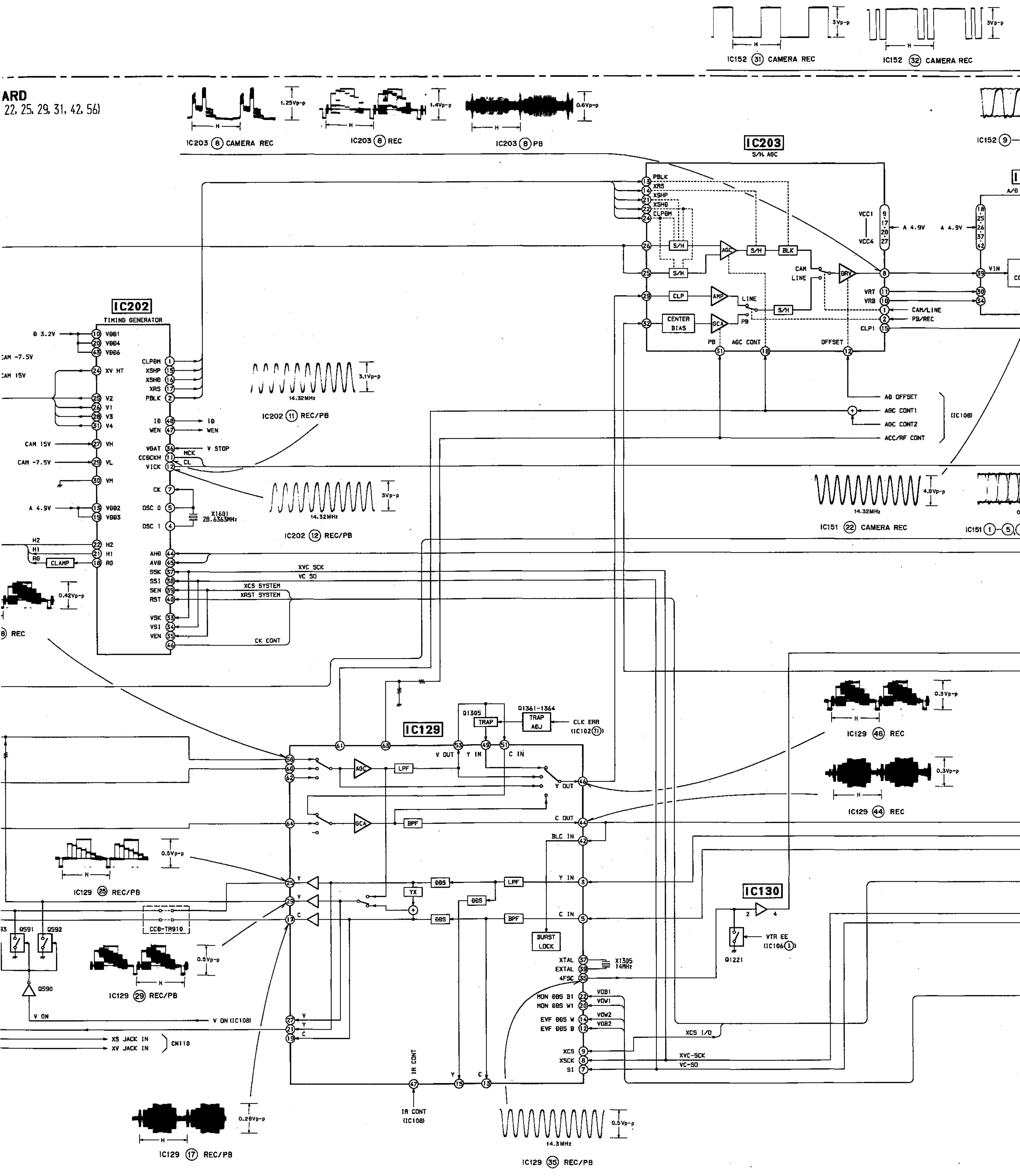

VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
EEP ROM
IC116
IC101
REC C
REC Y
PB Y
PB C
REC AFM
REC ATF
PB RF
REC PCM
PB PCM
REC/PB AMP
SWP
CH2
CH1
FLYING ERASE OSC
FE
CH2(B)
CH1(A)
FLYING ERASE
MD B MECHA
FP-220 (FLEXIBLE)
M903 LOADING MOTOR
M
S001 MODE SWITCH
(SEE PAGE 4-51)
DEW SENSOR
(SEE PAGE 4-51)
FP-249(FP-355, 356)(FLEXIBLE)
D001 T/E LED
TAPE TOP SENSOR
H001 T REEL FG SENSOR
Q001
H002 S REEL FG SENSOR
Q002
TAPE END SENSOR
S002
ME/MP
H16 MP
REC PROOF
S001 CC DOWN
LOAD, UN LOAD
MSW A-C
DEW AD
TAPE TOP
T REEL(+), (-)
S REEL(+), (-)
TAPE END
TAPE LED (K)
ME/MP SW
H16 MP SW
REC PROOF SW
CC DOWN SW
IC122 (1/3)
LOADING MOTOR DRIVE
IC122 (1/3)
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
LED DRIVE
IC121 (1/2)
WAVE SHAPER
D PG, D FG
IC117
MECHA/CAMERA CONTROL/SERVO
LOAD, UN LOAD
MSW A-C
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
TAPE TOP
T REEL FG
S REEL FG
TAPE END
TAPE LED ON
D PG, D FG
MECHA/ CAMERA CONTROL
CAMERA, V
AUDIO, SE
CONTROL
SERVO
SWP
DRUM PWM
CAP PWM
CLOG DET
SP DET
CAP FG
REF PILOT
ATF EROOR
IC120
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF EROOR
CLOG DET
SP DET
D PG, D FG
M901 DRUM MOTOR
DRUM PG FG
M
IC121 (1/2)
DRUM MOTOR DRIVE
DRUM VS
M902 CAPSTAN MOTOR
CAPSTAN FG
M
IC001
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CFG (+), (-)
CAP VS
IC1501 (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
DD-86 BOARD(1/2)
(SEE PAGE 4-103)
IC122 (1/3)
LPF
LPF
DRUM ERROR
CAP ERROR
HI SO, HI SI, HI SCK


BH101
LITIUM
BATTERY
LI-56 BOARD
(SEE PAGE 4-84)
HI-39 BOARD
(SEE PAGE
4-69, 72, 75)
HI SO, HI SI, HI SCK
IC1951
INITIAL RESET
BACKUP VCC
VTR UNREG
IC1952
BACKUP VCC
X RESET
FP-457 (FLEXIBLE) (1/2)
(SEE PAGE 4-76)
J902
LANC
S902
EJECT SW
S903
START/STOP SW
S904
STANDBY SW
VC SI2, VC SCK2
VC SI, VC SCK
DEW AD
XCC DOWN
X EJECT SW
XCAM+STBY SW
XVTR MODE SW
CF BLOCK (SEE PAGE 4-79)
S901
POWER SW
IC122 (1/3)
LOADING MOTOR
DRIVE
IC117
MECHA/CAMERA CONTROL/SERVO
LOAD, UN LOAD
MSW A~C
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
LCD DRIVER
LCD901
LCD INDICATOR
IC181
LC-52 BOARD
(SEE PAGE 4-79)
DIAL A, B
CONTROL DIAL
RV102
IC122 (1/3)
TAPE TOP DETECT
TAPE TOP
HI SO, HI SI, HI SCK
MODE CONTROL
S102-116
MENU SW
CAMERA FUNCTION SW
KEY AD2, 4, 5
IC1954
EEPROM
T REEL FG AMP
T REEL FG
MECHA/
CAMERA
CONTROL
CAMERA, VIDEO,
AUDIO, SERVO
CONTROL SIG
S REEL FG AMP
S REEL FG
FOCUS A, B
RV101
FOCUS DIAL
IC128
VSC
TAPE END DETECT
TAPE END
S103
STEADY SHOT SW
REC PCM
PB PCM
LED DRIVE
TAPE LED ON
X S/S SW
CCD-TR910
FK-66 BOARD
(SEE PAGE 4-82)
S151-159
VTR FUNCTION SW
RV151
ZOOM SW
KEY AD0, 1
ZOOM SW
IC121 (1/2)
WAVE SHAPER
D PG, D FG
FP457 (FLEXIBLE) (2/2)
(SEE PAGE 4-76)
IC122 (1/3)
ERROR
LPF
DRUM PWM
SWP
IC1955
LANC I/O
LANC SIG
LANC SIG
XSIRCS SIG
SERVO
ERROR
LPF
CAP PWM
BATT SIG
CLOG DET
SP DET
CCD-TR910
XLIGHT ON
EVF DD ON
VTR DD ON
CAP FG
XLIGHT ON
Q1519
LIGHT UNREG
PS1504
J901
BATTERY TERMINAL
REF PILOT
ATF ERROR
EVF UNREG
PS1502
VTR UNREG
MT UNREG
PS1503
BATT(+)
BATT SIG
IC1501 (1/2)
PS1501
BATT(-)
MT 5V
A 3.2V
D 3.2V
AUDIO 3.2V
CAM -7.5V
CAM 15V
AUDIO 4.9V
RP 4.9V
A 4.9V
DC/DC CONVERTER
DRUM/
CAPSTAN
PWM
DRIVE
Q1515
SW EVF 4.9V
SW EVF 15V
Q1517
EVF DD ON
VTR DD ON
DD-86 BOARD (1/2)
(SEE PAGE 4-103)

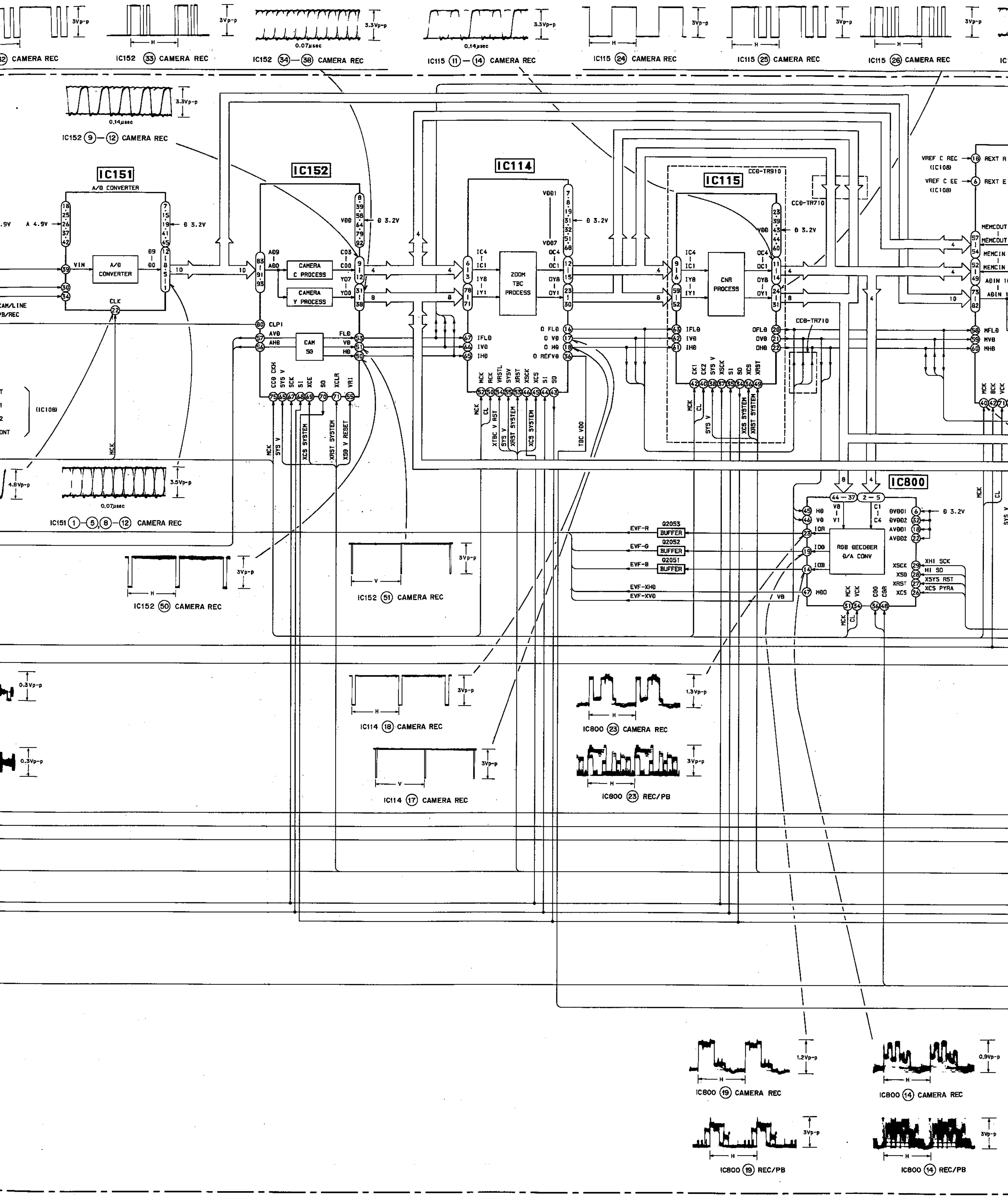
3-2. CAMERA/VIDEO BLOCK DIAGRAM-1


VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 29, 31, 42, 56)
0.76Vp-p
H
IC401 ⑦
(SEE PAGE 4-8)
CD-148 BOARD
IC401
CCD IMAGER
CCD OUT
Q401, 402
BUFFER
CN401
CCD OUT
CN112
V1
V2
V3
V4
RG
H2
H1
VL
SHT
VDD (+15V)
CAM -7.5V
VSHT
CAM 15V
Q1601-1604
SW
CAM -7.5V
CAM 15V
CAM DD ON
(IC110 ㊲)
IC2
TIMING
D 3.2V
VDD1
VDD4
VDD6
XV HT
VH
VM
VDD2
VDD3
CAM 15V
CAM -7.5V
A 4.9V
CLAMP
7.9Vp-p
IC401 ①②
IC401 ③④
0.42Vp-p
IC129 58 REC
(SEE PAGE 3-24)
COLOR EVF
(VF-95)
EVF XHD
EVF XVD
EVF R
EVF G
EVF B
CN111
VIDEO
S VIDEO
Y
C
CCD-TR910
VIDEO I/O
Y I/O
C I/O
XS JACK IN
CN251
CN252
S-Y I/O
S-C I/O
CN109
FP-378
(FLEXIBLE)
(SEE PAGE 4-91)
AV-35
BOARD
(SEE PAGE 4-91)
IC129 ㉕ REC/
Q593
Q591
Q592
Q590
V ON
IC129
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
CPC
(FOR CHECK)
EZ I/O
CN108
XS JA
XV JA
09

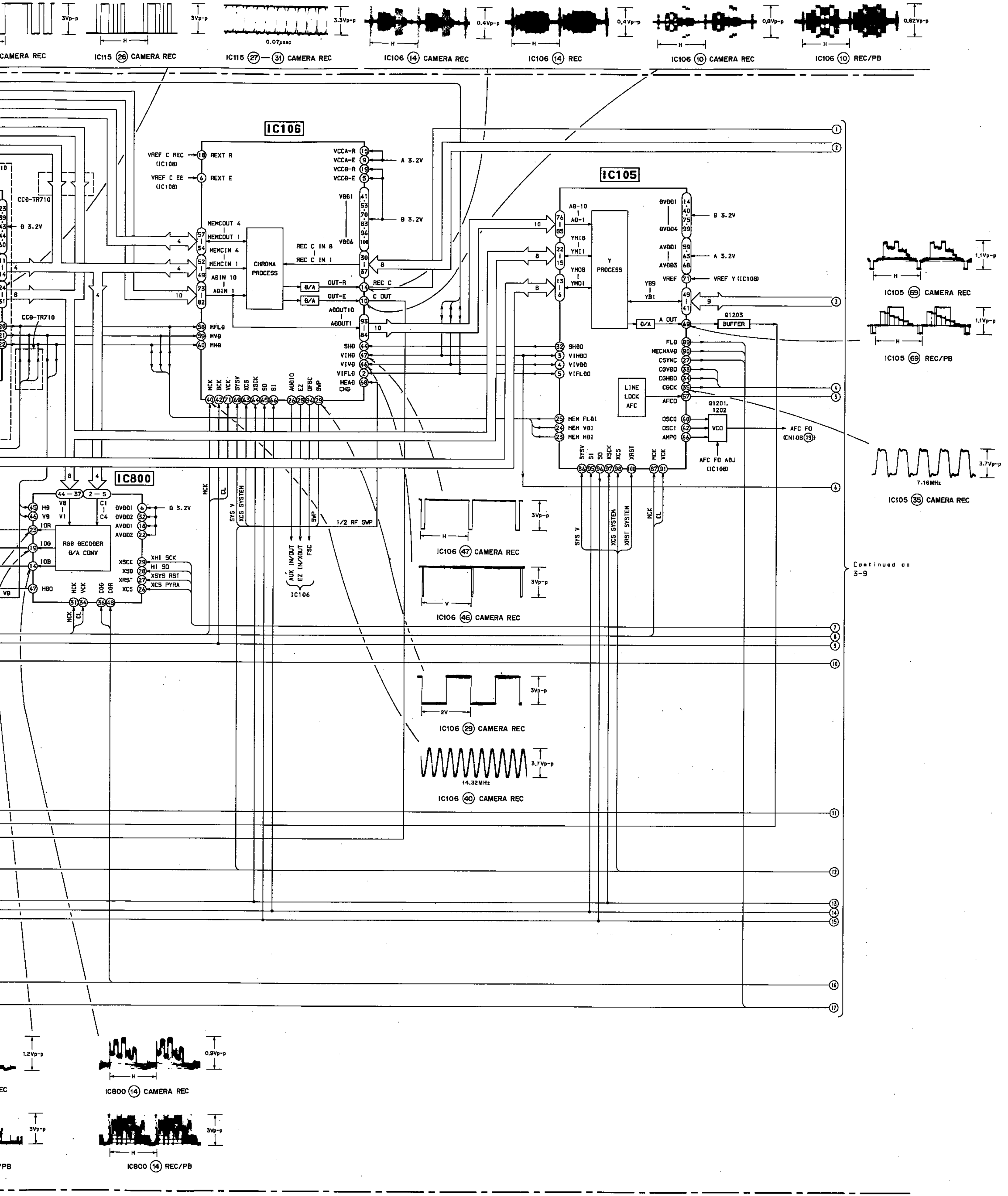
ARD
22, 25, 29, 31, 42, 56)



IC152 ㉛ CAMERA REC
IC152 ㉜ CAMERA REC
3Vp-p
H
IC203 ⑧ CAMERA REC
1.25Vp-p
IC203 ⑧ REC
1.4Vp-p
IC203 ⑧ PB
0.6Vp-p
IC152 ⑨
IC203
S/H, AGC
PBLK
XRS
XSHP
XSHD
CLPDM
S/H
AGC
BLK
DRV
CAM
LINE
CLP
AMP
CENTER BIAS
GCA
PB
AGC CONT
OFFSET
VCC1
VCC4
A 4.9V
VRT
VRB
CAM/LINE
PB/REC
CLP1
VIN
A/D
AD OFFSET
AGC CONT1
AGC CONT2
ACC/RF CONT
(IC108)
IC202
TIMING GENERATOR
D 3.2V
VDD1
VDD4
VDD6
CAM -7.5V
CAM 15V
XV HT
VZ
V1
V3
V4
VH
VL
VM
VDD2
VDD3
H2
H1
RG
CLAMP
CLPDM
XSHP
XSHD
XRS
PBLK
ID
WEN
VGAT
CCDCKH
VICK
MCK
CL
V STOP
CK
OSC 0
OSC 1
X1601
28.6363MHz
AHD
AVD
SSK
SSI
SEN
RST
VSK
VSI
VEN
XVC SCK
VC SD
XCS SYSTEM
XRST SYSTEM
CK CONT
IC202 ⑪ REC/PB
3.1Vp-p
14.32MHz
IC202 ⑫ REC/PB
3Vp-p
14.32MHz
IC151 ㉒ CAMERA REC
4.8Vp-p
14.32MHz
IC151 ①-⑤
0.42Vp-p
⑧ REC
IC129
Q1305
TRAP
Q1361-1364
TRAP ADJ
CLK ERR
(IC102 ㉛)
V OUT
Y IN
C IN
AGC
LPF
GCA
BPF
Y OUT
C OUT
BLC IN
Y IN
C IN
YX
DDS
BURST LOCK
XTAL
EXTAL
4FSC
X1305
14MHz
MON DDS B1
MON DDS W1
EVF DDS W
EVF DDS B
VOB1
VOW1
VOW2
VOB2
XCS
XSCK
SI
XCS I/O
XVC-SCK
VC-SD
IR CONT
IR CONT
(IC108)
Y
C
IC129 ㊻ REC
0.3Vp-p
IC129 ㊹ REC
0.3Vp-p
IC130
VTR EE
(IC106 ③)
Q1221
IC129 ㉕ REC/PB
0.5Vp-p
Q591
Q592
CCB-TR910
Q590
V ON
V ON (IC108)
XS JACK IN
XV JACK IN
CN110
IC129 ㉙ REC/PB
0.5Vp-p
IC129 ⑰ REC/PB
0.28Vp-p
IC129 ㉟ REC/PB
0.5Vp-p
14.3MHz

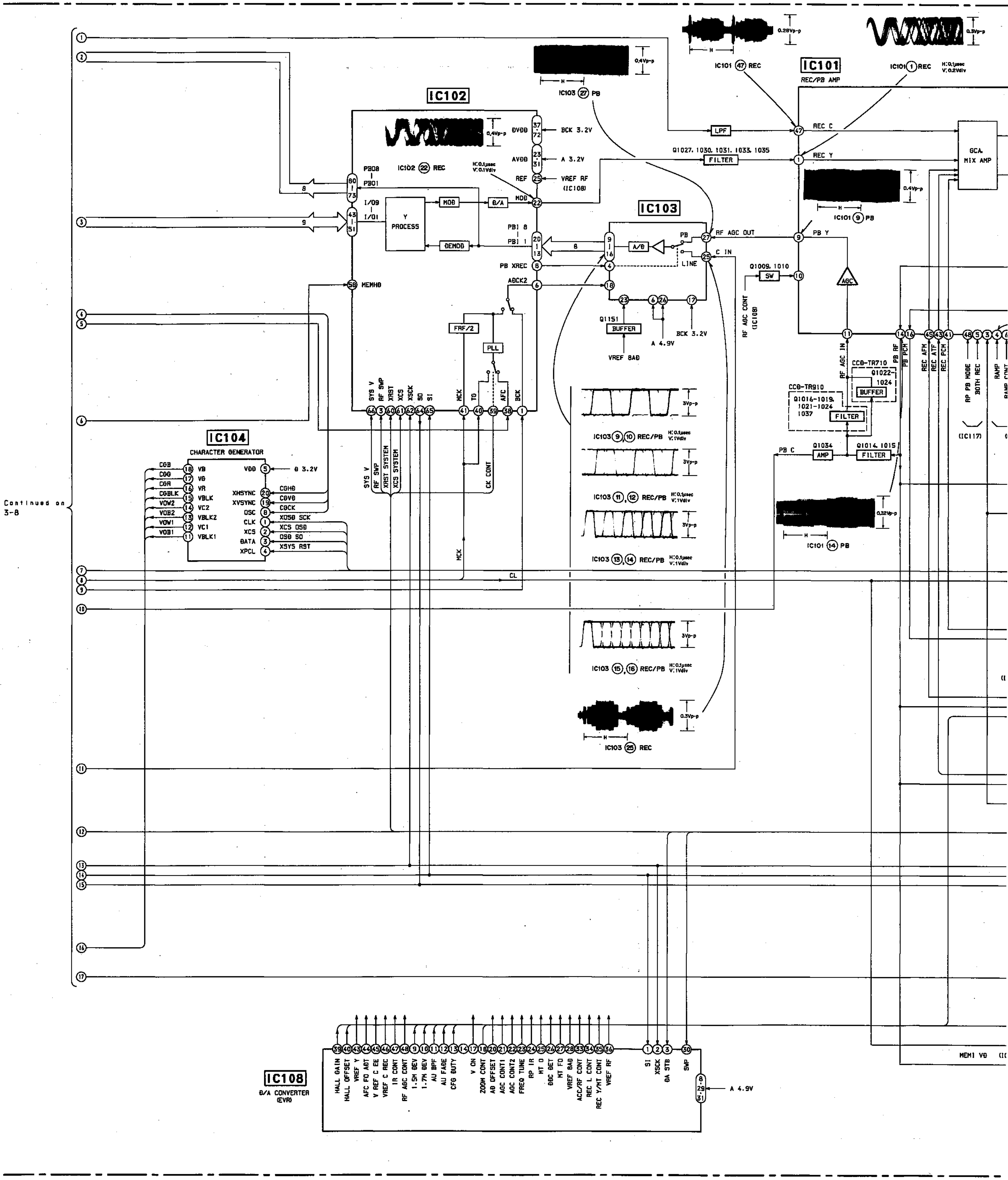


IC151
A/D CONVERTER
A/D CONVERTER
VIN
CLK
IC152
CAMERA C PROCESS
CAMERA Y PROCESS
CAM SG
CLPI
AVD
AHD
FLD
VD
HD
VDD
IC114
ZOOM TBC PROCESS
VDD1
VDD7
IFLD
IVD
IHD
O FLD
O VD
O HD
O REFVD
IC115
CCD-TR910
CCD-TR710
CNR PROCESS
IFLD
IVD
IHD
OFLD
OVD
OHD
IC800
RGB DECODER D/A CONV
Q2053 BUFFER
Q2052 BUFFER
Q2051 BUFFER
EVF-R
EVF-G
EVF-B
EVF-XHD
EVF-XVD
XHI SCK
HI SO
XSYS RST
XCS PYRA
VREF C REC (IC108)
VREF C EE (IC108)
REXT R
REXT E
MEMCOUT
MEMCIN
ADIN
MFLD
MVD
MHD
MCK
SYS V
XCS SYSTEM
XRST SYSTEM
XSD V RESET
TBC VDD
XTBC V RST
(IC108)
CAM/LINE
PB/REC
A 4.9V
D 3.2V
IC152 ㉝ CAMERA REC
IC152 ㉞—㊳ CAMERA REC
IC115 ⑪—⑭ CAMERA REC
IC115 ㉔ CAMERA REC
IC115 ㉕ CAMERA REC
IC115 ㉖ CAMERA REC
IC152 ⑨—⑫ CAMERA REC
IC151 ①—⑤,⑧—⑫ CAMERA REC
IC152 (50) CAMERA REC
IC152 (51) CAMERA REC
IC114 ⑱ CAMERA REC
IC114 ⑰ CAMERA REC
IC800 ㉓ CAMERA REC
IC800 ㉓ REC/PB
IC800 ⑲ CAMERA REC
IC800 ⑭ CAMERA REC
IC800 ⑲ REC/PB
IC800 ⑭ REC/PB
3Vp-p
3.3Vp-p
3.5Vp-p
4.8Vp-p
0.3Vp-p
1.3Vp-p
1.2Vp-p
0.9Vp-p
0.07μsec
0.14μsec
H
V



CAMERA REC
IC115 (26) CAMERA REC
IC115 (27) — (31) CAMERA REC
IC106 (14) CAMERA REC
IC106 (14) REC
IC106 (10) CAMERA REC
IC106 (10) REC/PB
3Vp-p
3.3Vp-p
0.07μsec
0.4Vp-p
0.8Vp-p
0.62Vp-p
H
IC106
VREF C REC (IC108)
VREF C EE (IC108)
REXT R
REXT E
VCCA-R
VCCA-E
VCCB-R
VCCB-E
A 3.2V
VBB1
VBB6
B 3.2V
MEMCOUT 4
MEMCOUT 1
MEMCIN 4
MEMCIN 1
ABIN 10
ABIN 1
CHROMA PROCESS
REC C IN 8
REC C IN 1
D/A
OUT-R
OUT-E
REC C
C OUT
ABOUT10
ABOUT1
SHD
VIHD
VIVD
VIFLD
HEAD CHG
MFLD
MVD
MHD
MCK
BCK
VCK
SYSV
XCS
XSCK
SO
SI
AUDIO
EZ
DFSC
SWP
CCD-TR710
IC105
AD-10
AD-1
YMI8
YMI1
YMO8
YMO1
Y PROCESS
YB9
YB1
DVDD1
DVDD4
AVDD1
AVDD3
VREF
VREF Y (IC108)
A OUT
Q1203 BUFFER
FLD
MECHAVD
CSYNC
CGVDD
CGHDD
CGCK
AFCO
LINE LOCK AFC
SHDO
VIHDO
VIVDO
VIFLDO
MEM FLDI
MEM VDI
MEM HDI
OSCO
OSCI
AMPO
Q1201, 1202
VCO
AFC FO (CN108 (19))
AFC FO ADJ (IC108)
XRST
IC105 (69) CAMERA REC
IC105 (69) REC/PB
1.1Vp-p
IC105 (35) CAMERA REC
7.16MHz
3.7Vp-p
IC800
HD
VD
IOR
IOG
IOB
HDO
VD
V1
C1
C4
RGB DECODER D/A CONV
DVDD1
DVDD2
AVDD1
AVDD2
XSCK
XSO
XRST
XCS
XHI SCK
HI SO
XSYS RST
XCS PYRA
CL
CGG
CGR
SYS V
XCS SYSTEM
1/2 RF SWP
AUX IN/OUT
EZ IN/XOUT
FSC
IC106
XRST SYSTEM
IC106 (47) CAMERA REC
IC106 (46) CAMERA REC
IC106 (29) CAMERA REC
IC106 (40) CAMERA REC
14.32MHz
2V
V
Continued on 3-9
1.2Vp-p
0.9Vp-p
IC800 (14) CAMERA REC
IC800 (14) REC/PB

CAMERA/VIDEO BLOCK DIAGRAM-2



Continued on 3-8
IC102
IC103
IC101
REC/PB AMP
IC104
CHARACTER GENERATOR
IC108
D/A CONVERTER (EVR)
Y PROCESS
MOD
D/A
DEMOD
FRF/2
PLL
A/D
BUFFER
LPF
FILTER
SW
AGC
AMP
GCA MIX AMP
DVDD
BCK 3.2V
AVDD
A 3.2V
REF
VREF RF (IC108)
PBD8 | PBD1
I/O9 | I/O1
MEMHD
PB XREC
ADCK2
PBI 8 | PBI 1
SYS V
RF SWP
XRST
XCS
XSCK
SO
SI
MCK
TG
AFC
BCK
CK CONT
SYS V
RF SWP
XRST SYSTEM
XCS SYSTEM
IC102 (22) REC
IC103 (27) PB
Q1027, 1030, 1031, 1033, 1035
REC C
REC Y
IC101 (47) REC
IC101 (1) REC
IC101 (9) PB
PB Y
PB
LINE
RF AGC OUT
C IN
Q1009, 1010
RF AGC CONT (IC108)
Q1151
VREF DAD
A 4.9V
BCK 3.2V
IC103 (9),(10) REC/PB
IC103 (11),(12) REC/PB
IC103 (13),(14) REC/PB
IC103 (15),(16) REC/PB
IC103 (25) REC
RF AGC IN
CCD-TR710 Q1022-1024
CCD-TR910 Q1016-1019, 1021-1024, 1037
Q1034
Q1014, 1015
PB C
IC101 (14) PB
PB RF
PB PCM
REC AFM
REC ATF
REC PCM
RP PB MODE
BOTH REC
RAMP
(IC117)
MEM1 VD
CGB
CGG
CGR
CGBLK
VDW2
VDB2
VDW1
VDB1
VB
VG
VR
VBLK
VC2
VBLKZ
VC1
VBLK1
VDD
D 3.2V
XHSYNC
XVSYNC
OSC
CLK
XCS
DATA
XPCL
CGHD
CGVD
CGCK
XOSD SCK
XCS OSD
OSD SO
XSYS RST
CL
MCK
HALL GAIN
HALL OFFSET
VREF Y
AFC FO ADJ
V REF C EE
VREF C REC
IR CONT
RF AGC CONT
1.5M DEV
1.7M DEV
AU BPF
AU FADE
CFG DUTY
V ON
ZOOM CONT
AD OFFSET
AGC CONT1
AGC CONT2
FREQ TUNE
RP IR
HT O
DOC DET
HT FO
VREF DAD
ACC/RF CONT
REC L CONT
REC Y/HT CONT
VREF RF
SI
XSCK
DA STB
SWP
A 4.9V
0.28Vp-p
0.3Vp-p
0.4Vp-p
0.32Vp-p
0.3Vp-p
3Vp-p
H:0.1μsec V:0.2Vdiv
H:0.1μsec V:1Vdiv

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM

INTELLIGENT ACCESSORY SHOE
[TR910]
FP-426
SE-51 BOARD
FP-377
AV-35 BOARD
FP-429
J901 TERMINAL BOARD
S VIDEO
VIDEO
RFU DC OUT
AUDIO
(MONO)
FP-378
CPC CONNECTOR
J903
(HEADPHONES)
FP-379
MA-268 BOARD
D303 (REC/BATTERY)
J301 MIC (PLUG IN POWER)
(SIRCS)
FP-435
MIC901 (L CH)
MIC902 (R CH)
MIC
ZOOM LENS UNIT
CD-148 BOARD
CCD IMAGER
FP-387
LB-45 BOARD
ND801 BACK LIGHT
VF-95 BOARD
FP-394
VF-96 BOARD
LCD902
COLOR LCD UNIT
FP-430
D991 D991
CN111 20P
VC-177 BOARD
(1/14) CH BLOCK
(2/14) CA BLOCK
(3/14) ME BLOCK
(4/14) LV BLOCK
(5/14) CL BLOCK
(6/14) RF, ER BLOCK
(7/14) RR BLOCK
(8/14) PY BLOCK
(9/14) MC BLOCK
(10/14) SB BLOCK
(11/14) AU BLOCK
(12/14) I/O BLOCK
(13/14) EZ BLOCK
(14/14) CN BLOCK
HI-39 BOARD
(1/3) UN BLOCK
(2/3) HI BLOCK
(3/3) CN BLOCK
TR910
CF BLOCK (FLEXIBLE)
POWER
CAMERA OFF VTR
FOCUS
NEAR FAR
CONTROL
AUTO MANUAL INFINITY
START/STOP MODE
5SEC
STEADY SHOT
16:9 WIDE·FADER·
COUNTER RESET·TITLE·MENU·
STEADY SHOT·DATE·EXPOSURE·
TIME·PROGRAM AE·
PICTURE EFFECT·EXECUTE
LC-52 BOARD
FP-424 (FLEXIBLE)
LCD901 LCD UNIT
BL002 BACK LIGHT
FP-457
FK-66 BOARD
S902 EJECT
LANC
S903 START/STOP
S904 STANDBY LOCK
BUFFER
HL-53 HARNESS
BH101 LITHIUM BATTERY
LI-56 BOARD
FP-220
M903 LOADING MOTOR
VIDEO HEAD
FP-248
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
FP-221
FP-249
FP-355
FP-356
B-MECHA
FP-383
DD-86 BOARD
[TR910]
J901 BATTERY TERMINAL

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ▨ : Pattern from the side which enables seeing.
  (The other layers'patterns are not indicated.)
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ○: Through hole .

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in µF unless otherwise noted. pF: µµF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊟ : nonflammable resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repeair.
- ━ : B+ Line.
- ╍ : B– Line.
- ⇛ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

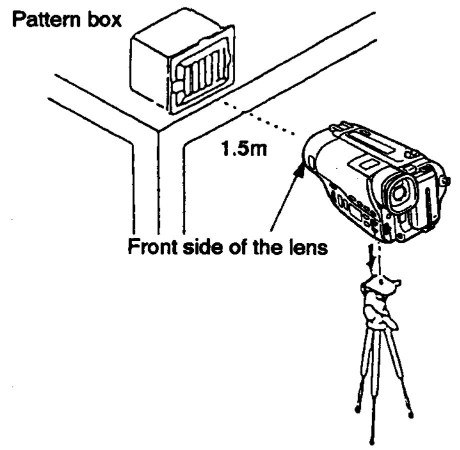
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- **Measuring conditions voltage value and waveform.**

(CAMERA block)
- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.
  Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
1.5m
Front side of the lens

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

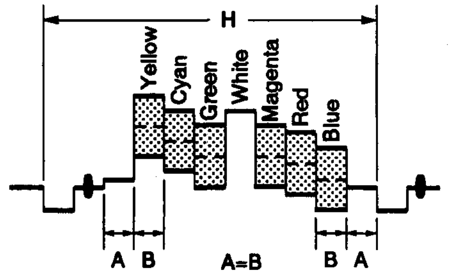

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

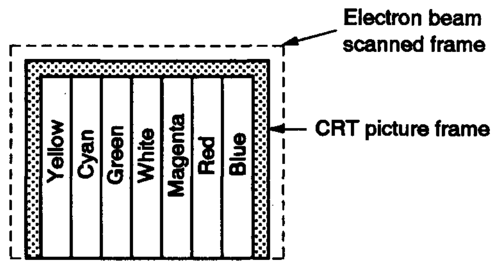
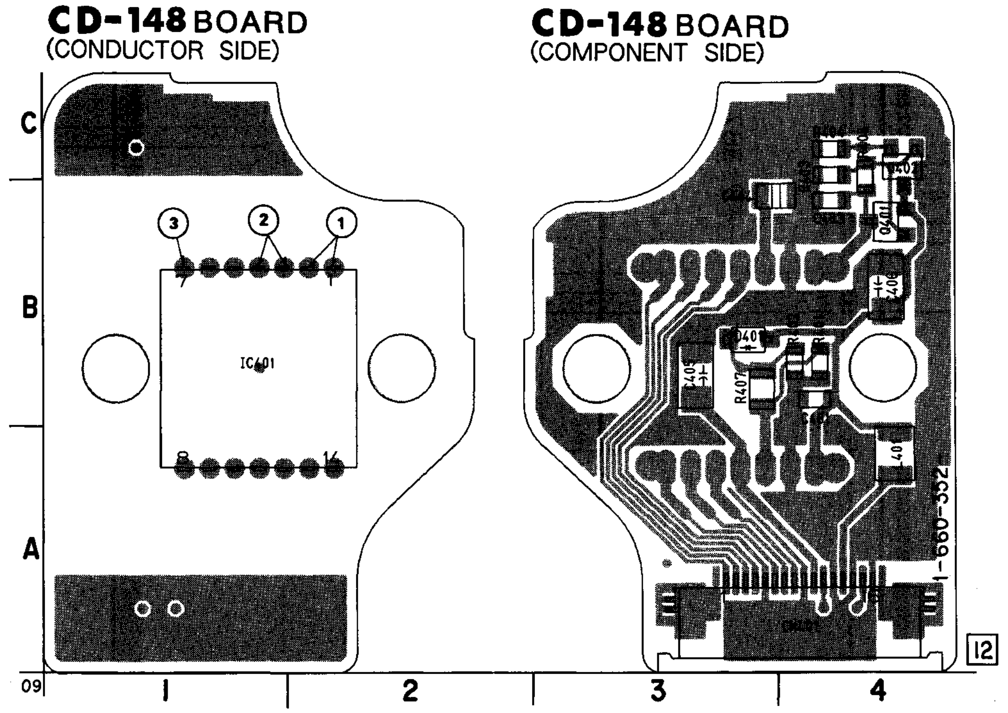

Electron beam scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. b (Picture on monitor TV)

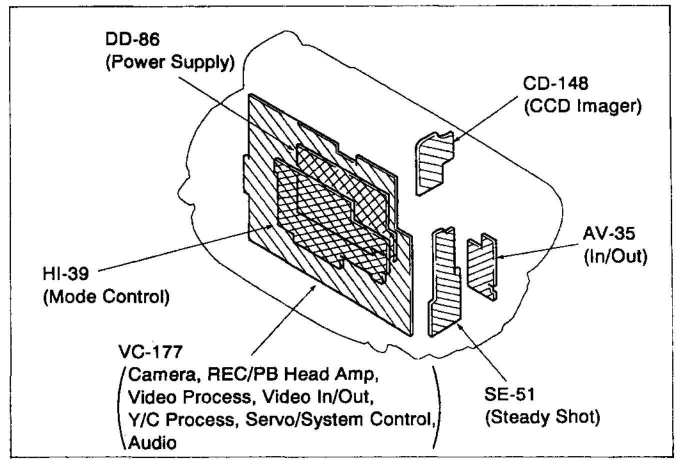
(REC/PB mode)
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

CD-148 (CCD IMAGER) PRINTED WIRING BOARD

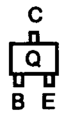
— Ref No. CD-148 BOARD: 3,000 series —


CD-148 BOARD
(CONDUCTOR SIDE)
CD-148 BOARD
(COMPONENT SIDE)
C
B
A
3
2
1
IC401
09
1
2
3
4
1-660-352
12

CD-148	BOARD
C401	B-4
C405	B-3
C406	B-4
CN401	A-4
IC401	B-1
L401	A-4
Q401	B-4
Q402	C-4
R403	C-4
R404	C-4
R407	B-3


DD-86
(Power Supply)
CD-148
(CCD Imager)
HI-39
(Mode Control)
AV-35
(In/Out)
VC-177
(Camera, REC/PB Head Amp, Video Process, Video In/Out, Y/C Process, Servo/System Control, Audio)
SE-51
(Steady Shot)

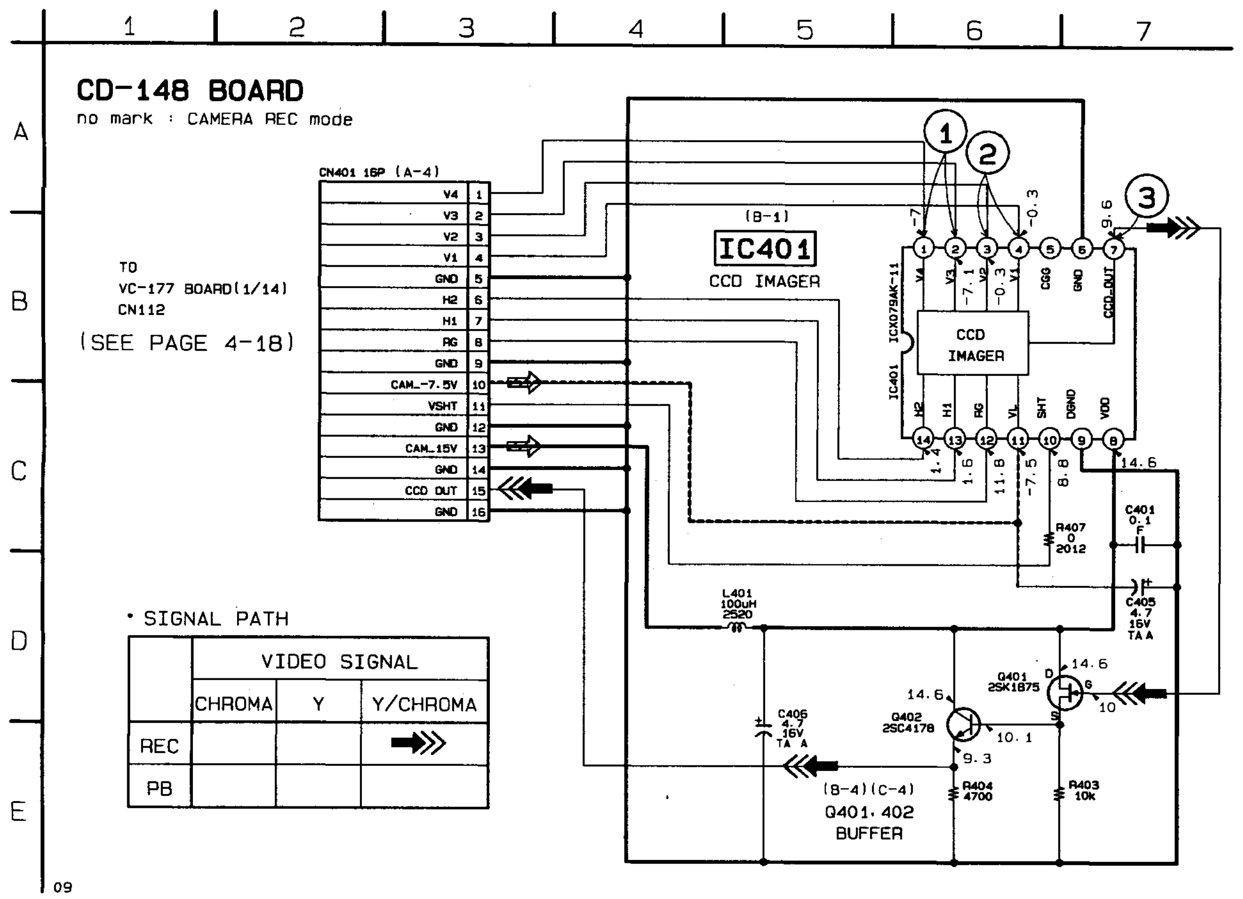
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

CD-148 (CCD IMAGER) SCHEMATIC DIAGRAM

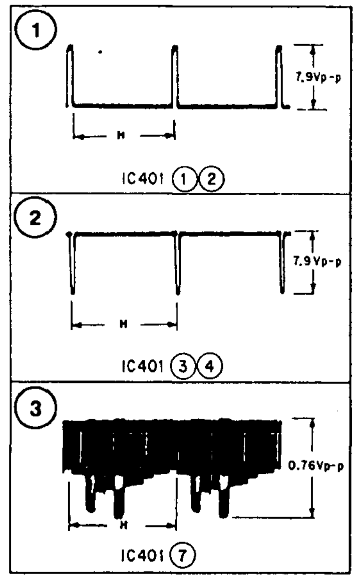
— Ref No. CD-148 BOARD: 3,000 series —


1
2
3
4
5
6
7
A
B
C
D
E
CD-148 BOARD
no mark : CAMERA REC mode
CN401 16P (A-4)
V4 1
V3 2
V2 3
V1 4
GND 5
H2 6
H1 7
RG 8
GND 9
CAM_-7.5V 10
VSHT 11
GND 12
CAM_15V 13
GND 14
CCD OUT 15
GND 16
TO
VC-177 BOARD(1/14)
CN112
(SEE PAGE 4-18)
(B-1)
IC401
CCD IMAGER
ICX079AK-11
IC401
CCD IMAGER
V4
V3
V2
V1
CGG
GND
CCD_OUT
H2
H1
RG
VL
SHT
DGND
VDD
-7
-7.1
-0.3
-0.3
9.6
1.4
1.6
11.8
-7.5
8.8
14.6
R407
0
2012
C401
0.1
F
C405
4.7
16V
TA A
L401
100uH
2520
C406
4.7
16V
TA A
Q401
2SK1875
D
G
S
14.6
10
Q402
2SC4178
14.6
10.1
9.3
R404
4700
R403
10k
(B-4)(C-4)
Q401, 402
BUFFER
09

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡》
PB			

CD-148 BOARD



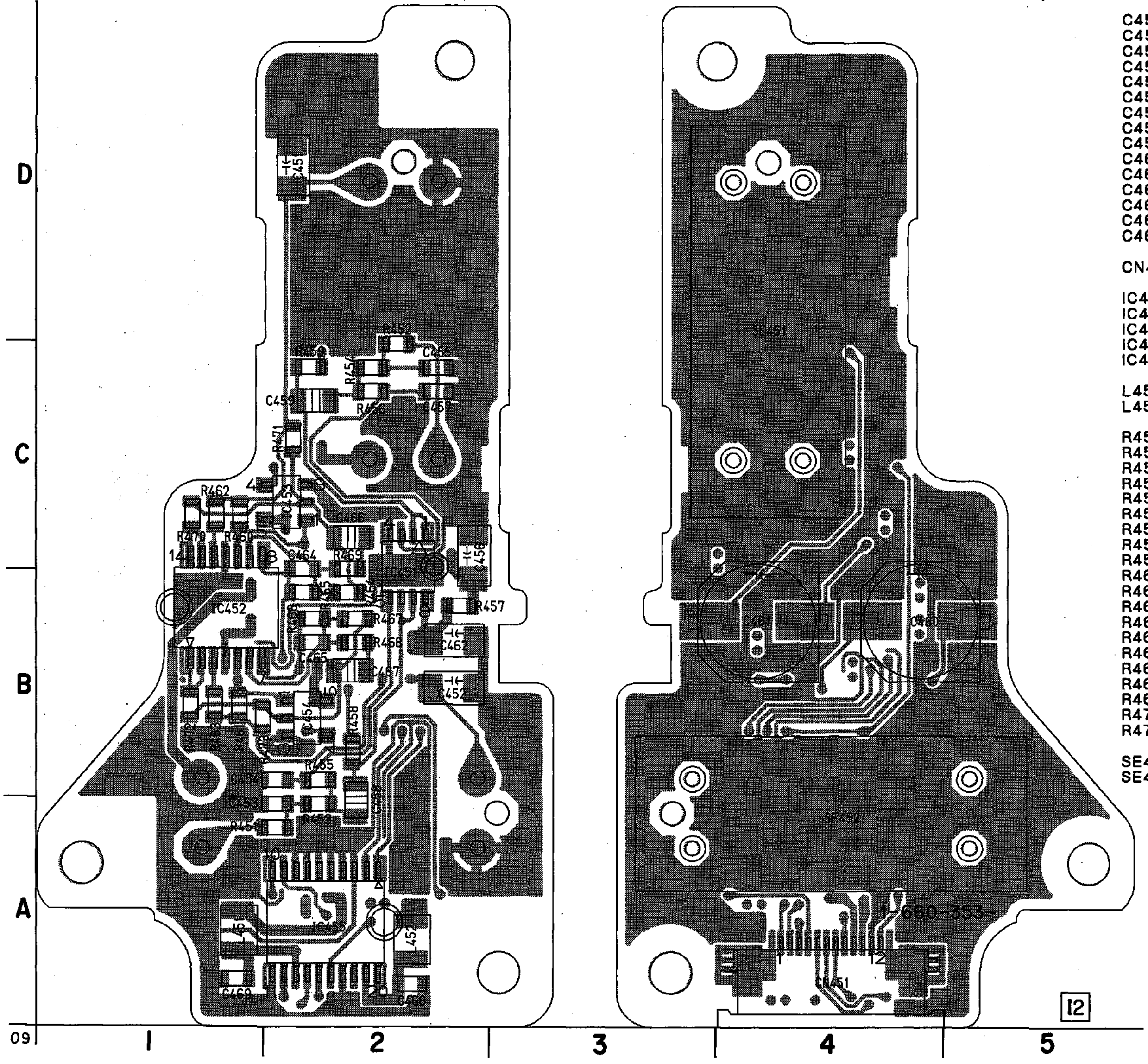
Note on the CCD Imager replacement

- The CCD imager is not mounted for the already mounted CD-148 board supplied as the repair parts.
  When replacing the CD-148 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

SE-51 (STEADY SHOT) PRINTED WIRING BOARD

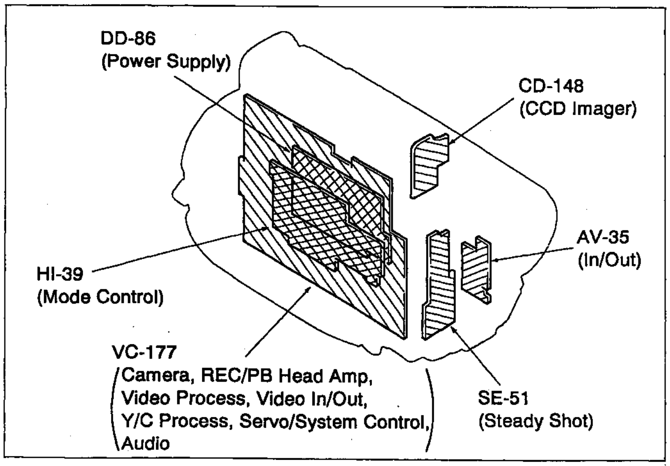
— Ref No. SE-51 BOARD: 3,000 series —

SE-51 BOARD (CONDUCTOR SIDE) **SE-51** BOARD (COMPONENT SIDE)



D
C
B
A
09
1
2
3
4
5
C451
R452
R459
C455
R454
C459
R456
C457
R471
R462
C458
R470
R460
14
C464
R469
IC451
C456
IC452
R457
R467
R466
R468
C462
C465
C467
C452
C454
R458
R461
R472
R465
C453
R464
R453
C460
IC455
L451
L452
C469
C468
SE451
C461
C460
SE452
1-660-353-
12
CN451

SE-51	BOARD
C451	D-1
C452	B-2
C453	A-2
C454	B-2
C455	C-2
C456	C-2
C457	C-2
C458	A-2
C459	C-2
C460	B-4
C461	B-4
C462	B-2
C467	B-2
C468	A-2
C469	A-1
CN451	A-4
IC451	C-2
IC452	B-1
IC453	C-2
IC454	B-2
IC455	A-2
L451	A-1
L452	A-2
R451	A-2
R452	C-2
R453	A-2
R454	C-2
R455	B-2
R456	C-2
R457	B-2
R458	B-2
R459	C-2
R460	C-1
R461	B-1
R462	C-1
R463	B-1
R464	B-2
R465	B-2
R466	B-2
R467	B-2
R468	B-2
R470	C-1
R472	B-1
SE451	D-4
SE452	A-4

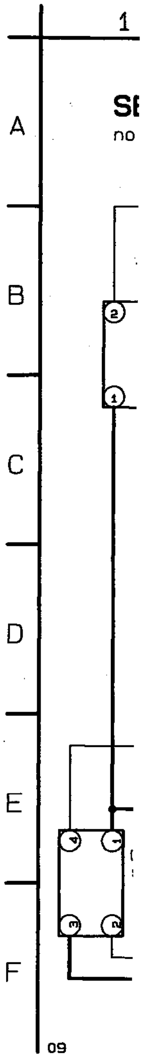


DD-86
(Power Supply)
CD-148
(CCD Imager)
AV-35
(In/Out)
HI-39
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
SE-51
(Steady Shot)

There are few cases that the part isn't mounted in this model is printed on this diagram.

SE-51 (STE

— Ref No. SE-



1
A
SE
no
B
C
D
E
F
09

SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

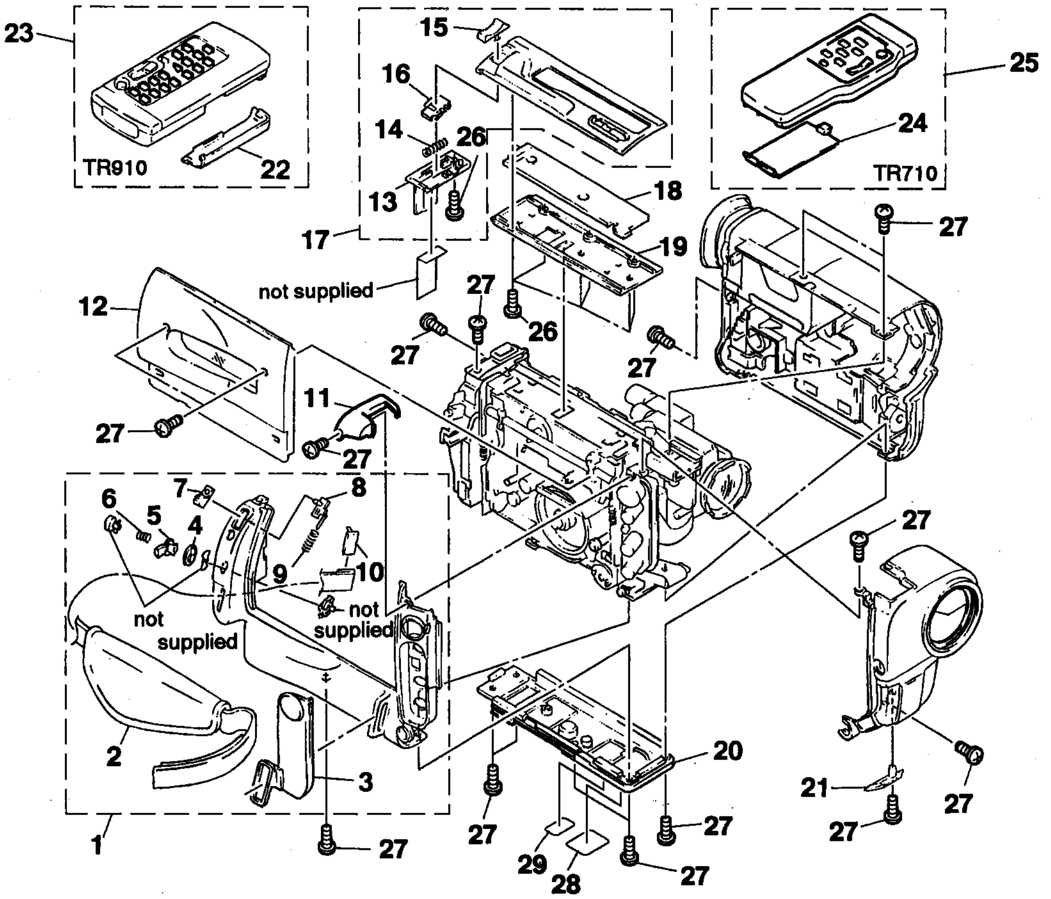
NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Canadian model is abbreviated as CND.
- Hong Kong model is abbreviated as HK.
- Tourist model is abbreviated as JE.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

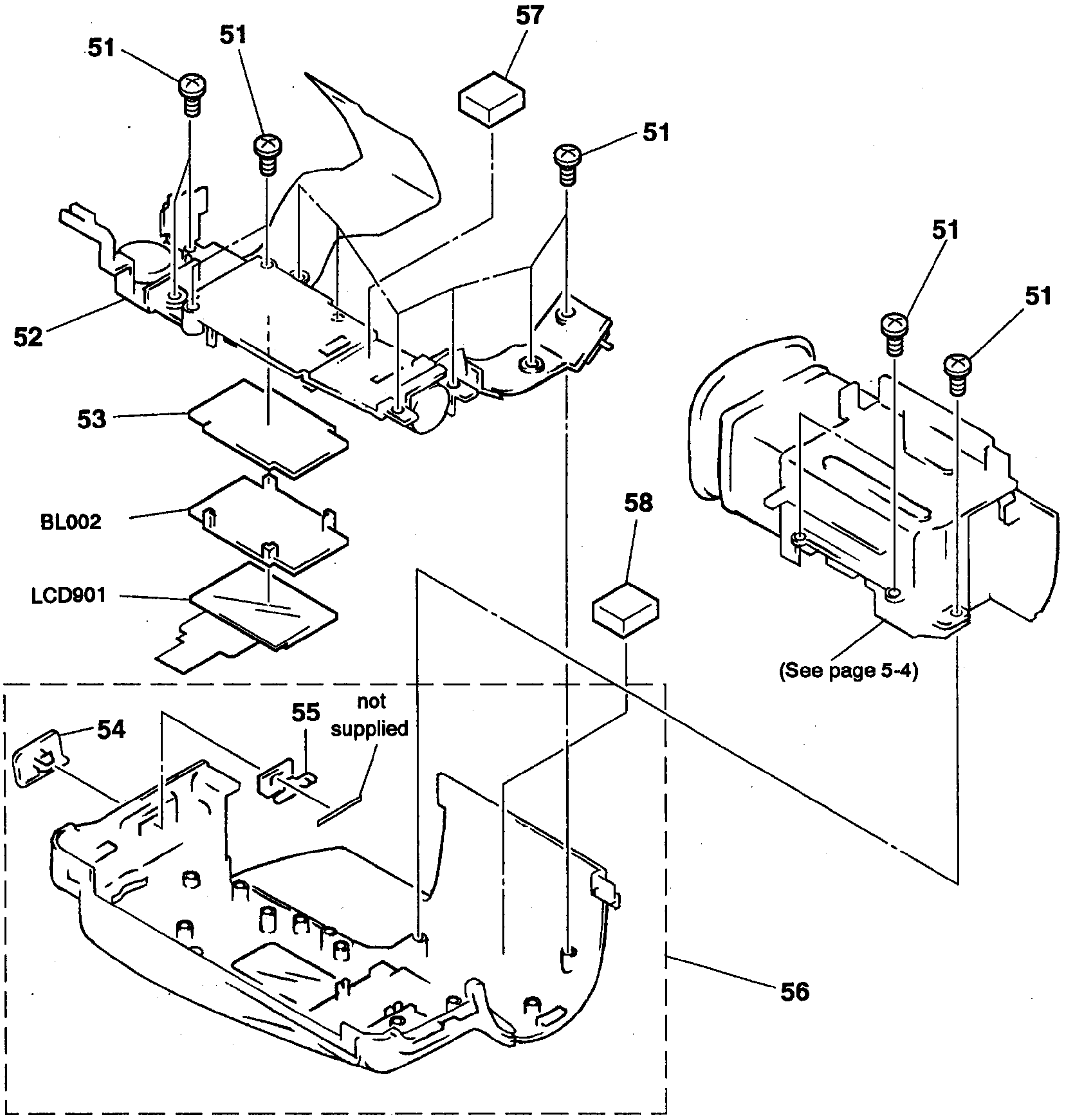
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

5-1-1. CABINET (L) ASSEMBLY



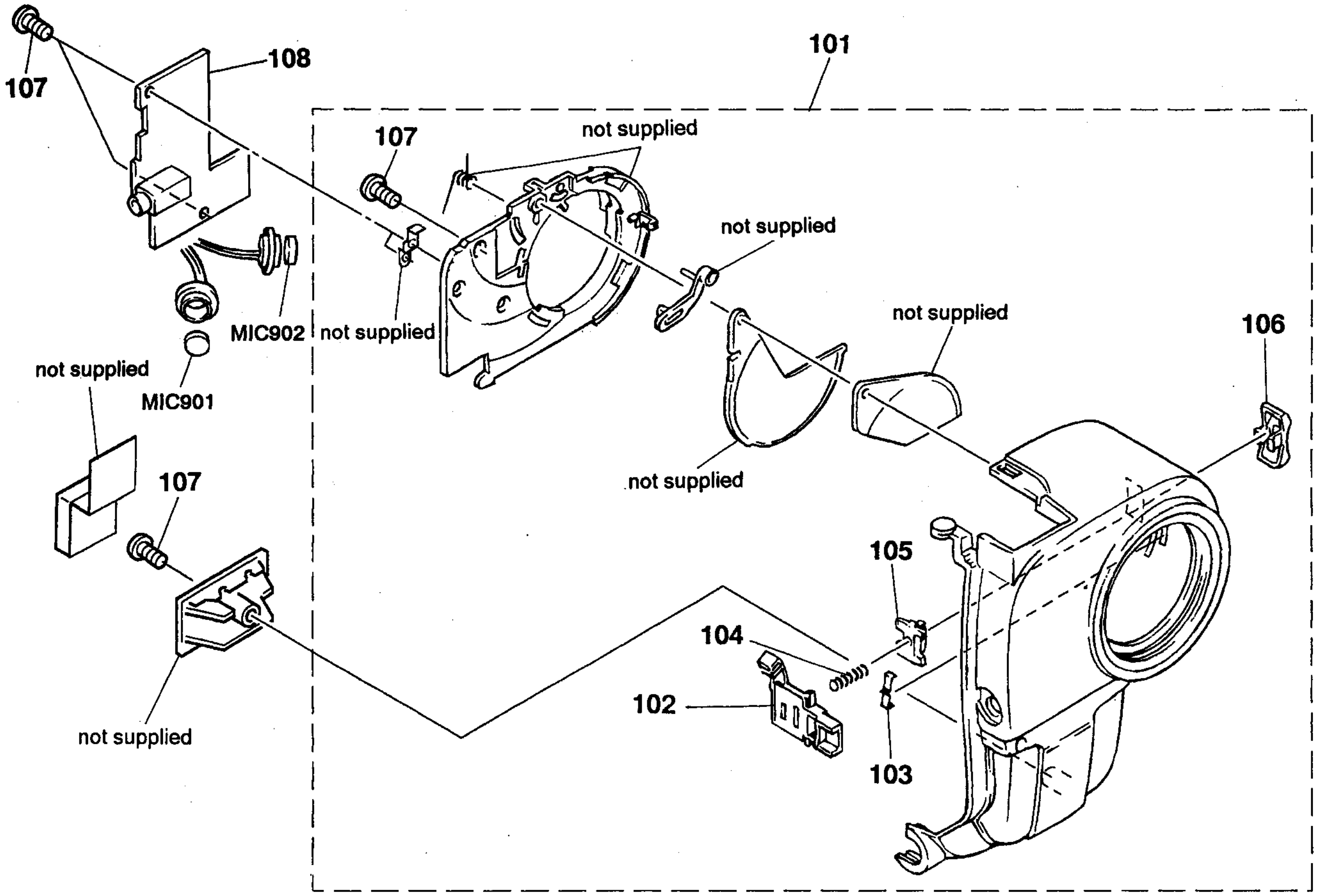
Ref. No.	Part No.	Description	Remark
1	X-3945-931-1	CABINET (L) ASSY (TR910)	
1	X-3946-034-1	CABINET (L) ASSY (TR710)	
2	3-969-339-01	BELT, GRIP	
3	3-968-781-01	LID, JACK (TR910)	
3	3-968-781-11	LID, JACK (TR710)	
4	3-736-364-01	SPRING	
5	3-969-081-01	KNOB, STANDBY	
6	3-578-221-00	SPRING, COMPRESSION	
7	3-968-779-01	BUTTON, EJECT (TR910)	
7	3-968-779-11	BUTTON, EJECT (TR710)	
8	3-968-780-01	LOCK, EJECT	
9	3-302-492-00	SPRING, COMPRESSION	
10	3-942-895-01	STOPPER, BELT	
11	3-968-800-01	CABINET, SHOE (TR910)	
11	3-968-800-11	CABINET, SHOE (TR710)	
12	X-3945-932-1	LID ASSY, CASSETTE (TR910)	
12	X-3946-027-1	LID ASSY, CASSETTE (TR710)	
13	3-968-773-01	BASE, ZOOM	
14	3-970-851-01	SPRING, COMPRESSION	
15	3-968-774-01	LEVER, ZOOM (TR910)	
15	3-968-774-11	LEVER, ZOOM (TR710)	
16	3-968-775-01	SLIDER, ZOOM	
17	X-3946-017-1	UPPER ASSY, LS (TR910)	
17	X-3946-221-1	UPPER ASSY, LS (TR710)	
18	A-7072-556-A	FK-66 (HCU) BOARD, COMPLETE	
19	3-968-799-01	LS (LOWER)	
20	X-3946-025-1	BOTTOM ASSY, CABINET (TR910)	
20	X-3946-172-1	BOTTOM ASSY, CABINET (TR710)	
21	3-968-796-01	LID, CPC (TR910)	
21	3-968-796-11	LID, CPC (TR710)	
22	3-742-854-01	LID, BATTERY CASE (for RMT-715)	
23	8-917-540-90	REMOCON RMT-715//M SET (TR910)	
24	3-958-131-01	LID, BATTERY CASE (for RMT-708)	
25	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR710)	
26	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
27	3-719-381-01	SCREW (M2X4)	
28	3-704-256-01	LABEL, CAUTION (TR910:US, CND)	
* 29	3-704-367-01	LABEL (US)	

5-1-2. CABINET (R) ASSEMBLY


51
51
57
51
51
51
52
53
BL002
LCD901
58
(See page 5-4)
54
55
not supplied
56

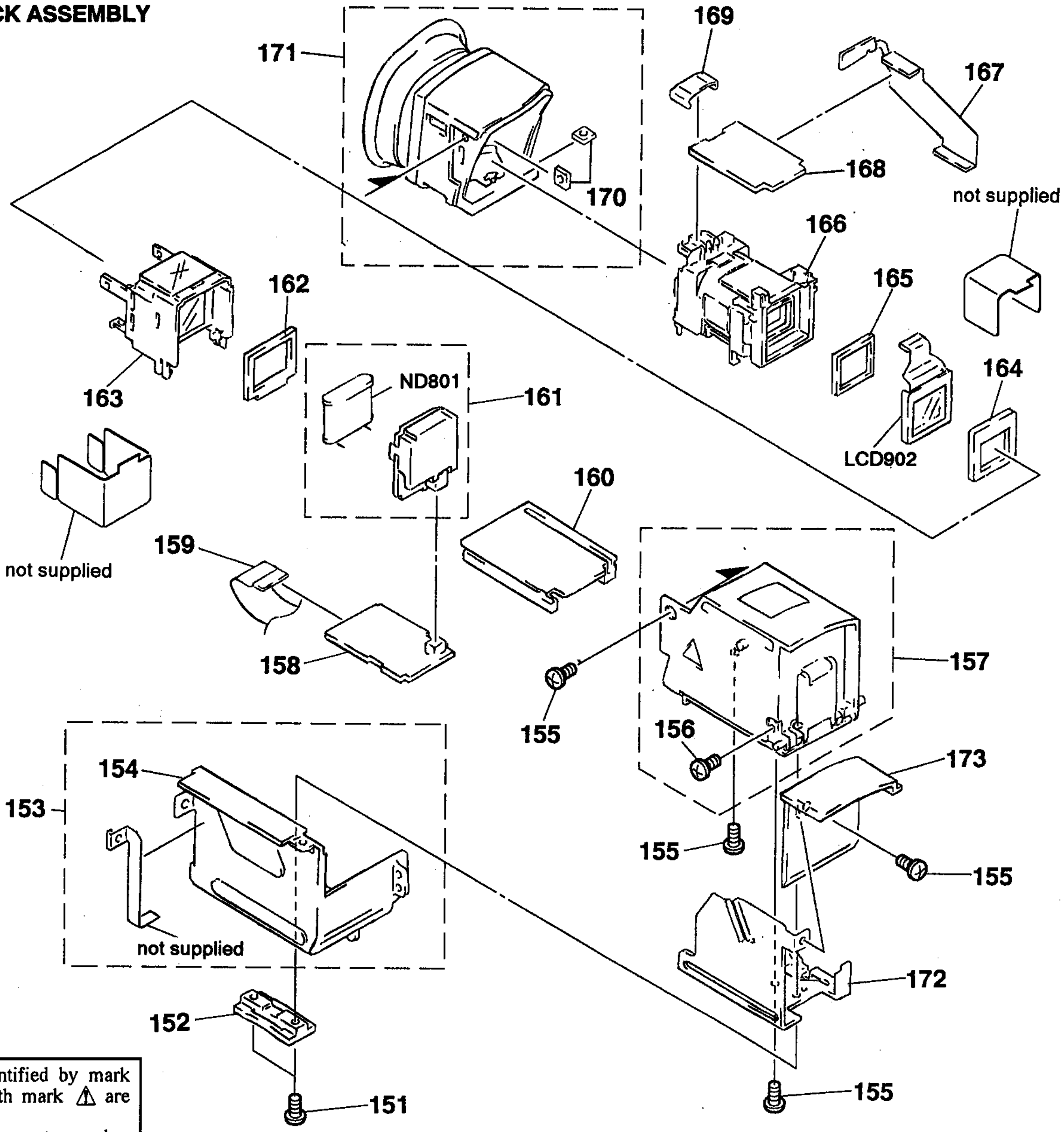
Ref. No.	Part No.	Description	Remark
51	3-948-339-01	SCREW, TAPPING	
52	1-473-604-11	SWITCH BLOCK, CONTROL (CF-6300)	
53	A-7072-548-A	LC-52 (HC) BOARD, COMPLETE	
54	3-968-758-01	KNOB, S/S MODE (TR910)	
54	3-968-758-11	KNOB, S/S MODE (TR710)	
55	3-968-759-01	S/S MODE	
56	X-3946-016-1	CABINET (R) ASSY (TR910)	
56	X-3946-033-1	CABINET (R) ASSY (TR710)	
57	3-971-133-01	CUSHION (R2), ABSORBENT	
58	3-971-132-01	CUSHION (R1), ABSORBENT	
BL002	1-517-528-11	LIGHT, BACK	
LCD901	1-801-207-11	DISPLAY PANEL, LIQUID CRYSTAL	

5-1-3. FRONT PANEL ASSEMBLY


107
108
101
107
not supplied
not supplied
MIC902
not supplied
not supplied
MIC901
not supplied
106
not supplied
107
105
104
102
103
not supplied

Ref. No.	Part No.	Description	Remark
101	X-3945-927-1	PANEL ASSY, FRONT (TR910:US, CND)	
101	X-3946-028-1	PANEL ASSY, FRONT (TR710)	
101	X-3946-029-1	PANEL ASSY, FRONT (E, JE, HK)	
102	3-968-741-01	RETAINER, POWER BUTTON	
103	3-969-270-01	SPRING, CLICK	
104	3-965-034-01	SPRING, COMPRESSION	
105	3-968-740-01	BUTTON, POWER LOCK	
106	3-968-739-01	BUTTON, POWER (TR910)	
106	3-968-739-11	BUTTON, POWER (TR710)	
107	3-948-339-01	SCREW, TAPPING	
108	A-7072-547-A	MA-268 (HC) BOARD, COMPLETE	
MIC901	1-542-259-11	MICROPHONE, CAP	
MIC902	1-542-259-11	MICROPHONE, CAP	

5-1-4. EVF BLOCK ASSEMBLY

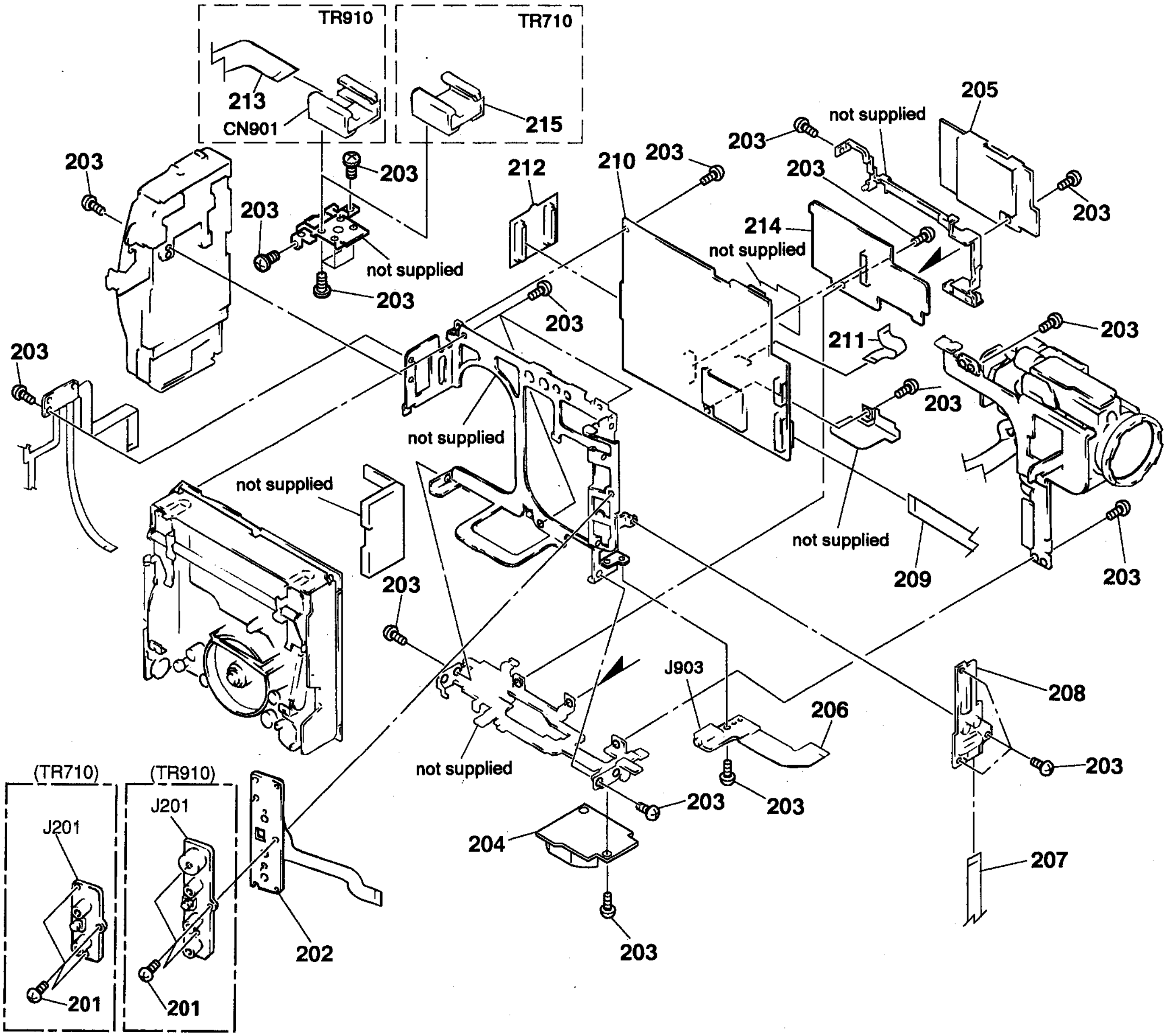

171
169
167
168
170
166
not supplied
165
164
162
163
ND801
161
LCD902
160
not supplied
159
158
157
155
156
173
154
153
155
155
not supplied
172
152
151
155

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

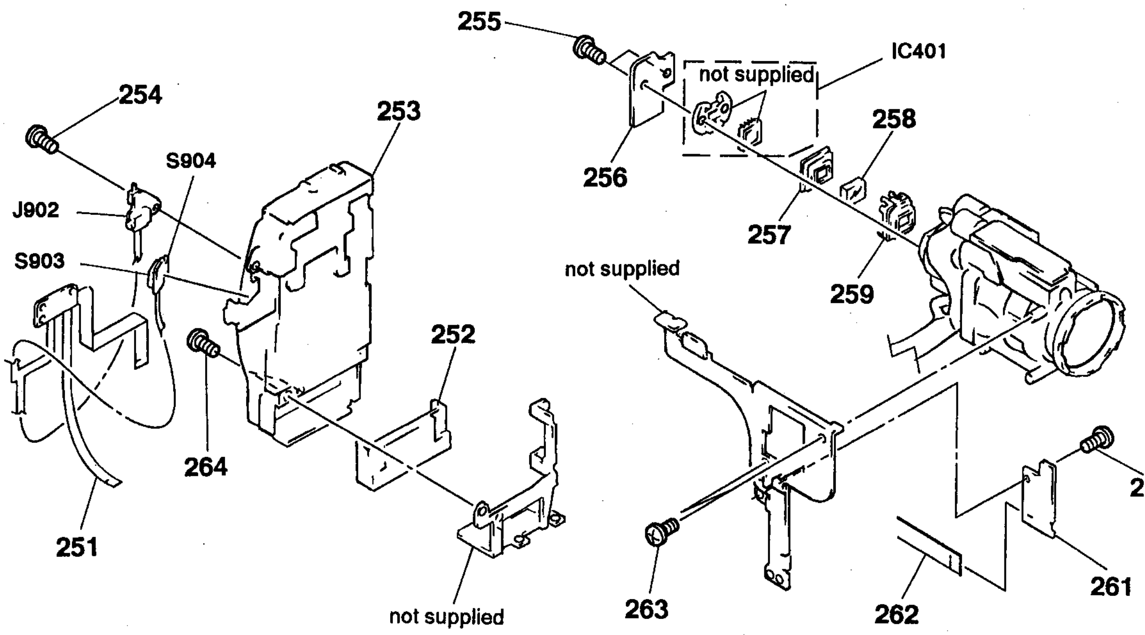
Ref. No.	Part No.	Description	Remark
151	3-719-381-21	SCREW (M2X6)	
152	3-968-822-01	SLIDER (A)	
153	X-3946-289-1	CABINET ASSY, BASE (TR910)	
153	X-3946-469-1	CABINET ASSY, BASE (TR710)	
154	3-968-821-01	CABINET, BASE (TR910)	
154	3-968-821-11	CABINET, BASE (TR710)	
155	3-968-729-01	ACE (M2), LOCK	
156	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
157	X-3945-936-1	CABINET (FRONT) ASSY, VF (TR910)	
157	X-3946-468-1	CABINET (FRONT) ASSY, VF (TR710)	
158	A-7072-537-A	VF-95 (VH4C) BOARD, COMPLETE	
159	1-660-301-11	FP-430 FLEXIBLE BOARD	
160	3-968-820-01	CABINET (BOTTOM), VF	
161	A-7072-539-A	LB-45 (VH4C) BOARD, COMPLETE	
* 162	3-969-923-01	CUSHION, BACK LIGHT	
163	X-3945-983-1	HOLDER ASSY, PRISM	
* 164	3-960-302-01	CUSHION (1), LCD	
* 165	3-969-924-01	CUSHION (Y), LCD	
166	X-3945-984-1	LENS ASSY, VF	
167	1-660-292-11	FP-394 FLEXIBLE BOARD	
168	A-7072-538-A	VF-96 (VH4C) BOARD, COMPLETE	
* 169	3-969-176-01	COVER, SENSOR	
170	3-718-233-01	NUT, PLATE	
171	X-3945-937-1	CABINET (REAR) ASSY, VF	
172	X-3945-938-1	METAL ASSY, SLIDE SHEET	
173	3-968-823-01	LID, SLIDE (TR910)	
173	3-968-823-11	LID, SLIDE (TR710)	
LCD902	8-753-015-20	LCX005BK-1	
⚠ND801	1-517-414-21	FLUORESCENT TUBE (0.55 INCH)	

5-1-5. MAIN BOARDS ASSEMBLY


TR910
TR710
213
CN901
215
205
not supplied
203
203
203
212
210
203
203
203
203
203
214
not supplied
not supplied
203
203
203
211
203
203
not supplied
not supplied
not supplied
209
203
203
J903
206
208
203
not supplied
(TR710)
(TR910)
J201
J201
203
203
203
204
207
202
203
201
201

Ref. No.	Part No.	Description	Remark
201	3-719-381-01	SCREW (M2X4)	
202	1-660-278-11	FP-378 FLEXIBLE BOARD	
203	3-713-786-21	SCREW (M2X3)	
204	A-7072-546-A	LI-56 (HC) BOARD, COMPLETE	
205	A-7092-843-A	DD-86 (MC) BOARD, COMPLETE (TR710)	
205	A-7092-763-A	DD-86 (HCU) BOARD, COMPLETE (TR910)	
206	1-660-279-11	FP-379 FLEXIBLE BOARD	
207	1-660-277-11	FP-377 FLEXIBLE BOARD	
208	A-7072-551-A	SE-51 (HC) BOARD, COMPLETE	
209	1-660-302-11	FP-435 FLEXIBLE BOARD	
210	A-7092-824-A	VC-177 (MC) BOARD, COMPLETE (TR710)	
210	A-7092-762-A	VC-177 (HCU) BOARD, COMPLETE (TR910)	
211	1-660-286-11	FP-387 FLEXIBLE BOARD	
212	1-660-283-11	FP-383 FLEXIBLE BOARD	
213	1-660-300-11	FP-426 FLEXIBLE BOARD (TR910)	
214	A-7092-977-A	HI-39 (MCPE) BOARD, COMPLETE (TR710)	
214	A-7092-764-A	HI-39 (HCU) BOARD, COMPLETE (TR910)	
215	X-3946-197-1	SHOE ASSY (TR710)	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P (TR910)	
J201	1-537-747-21	TERMINAL BOARD (TR910)	
J201	1-537-747-41	TERMINAL BOARD (TR710)	
J903	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONES)	

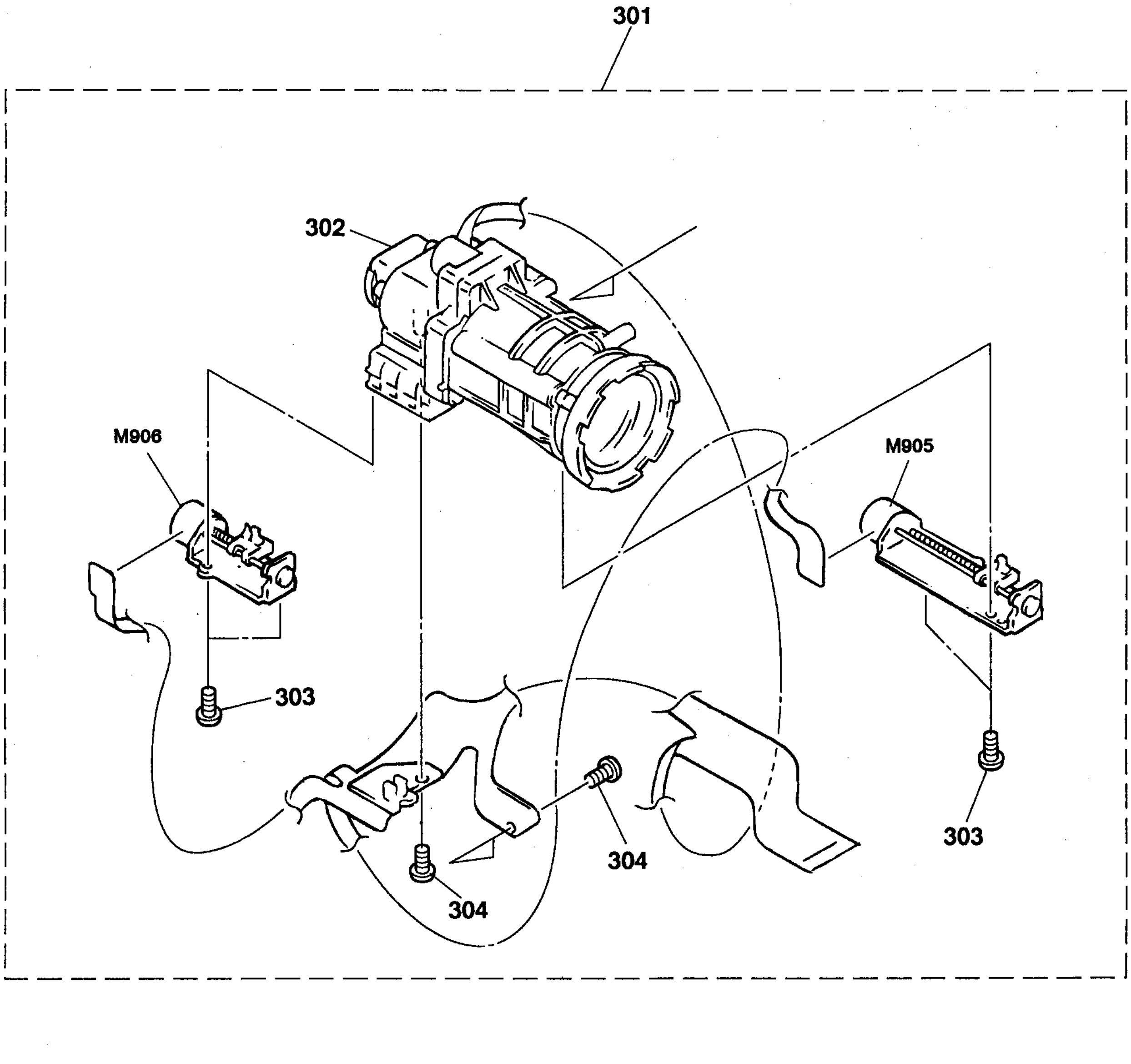
5-1-6. BATTERY PANEL ASSEMBLY


255
IC401
not supplied
254
253
258
S904
256
J902
257
S903
not supplied
259
252
264
260
251
261
263
262
not supplied

Be sure to read "Note on the CCD Imager replacement" on page 4–8 when changing the CCD imager.

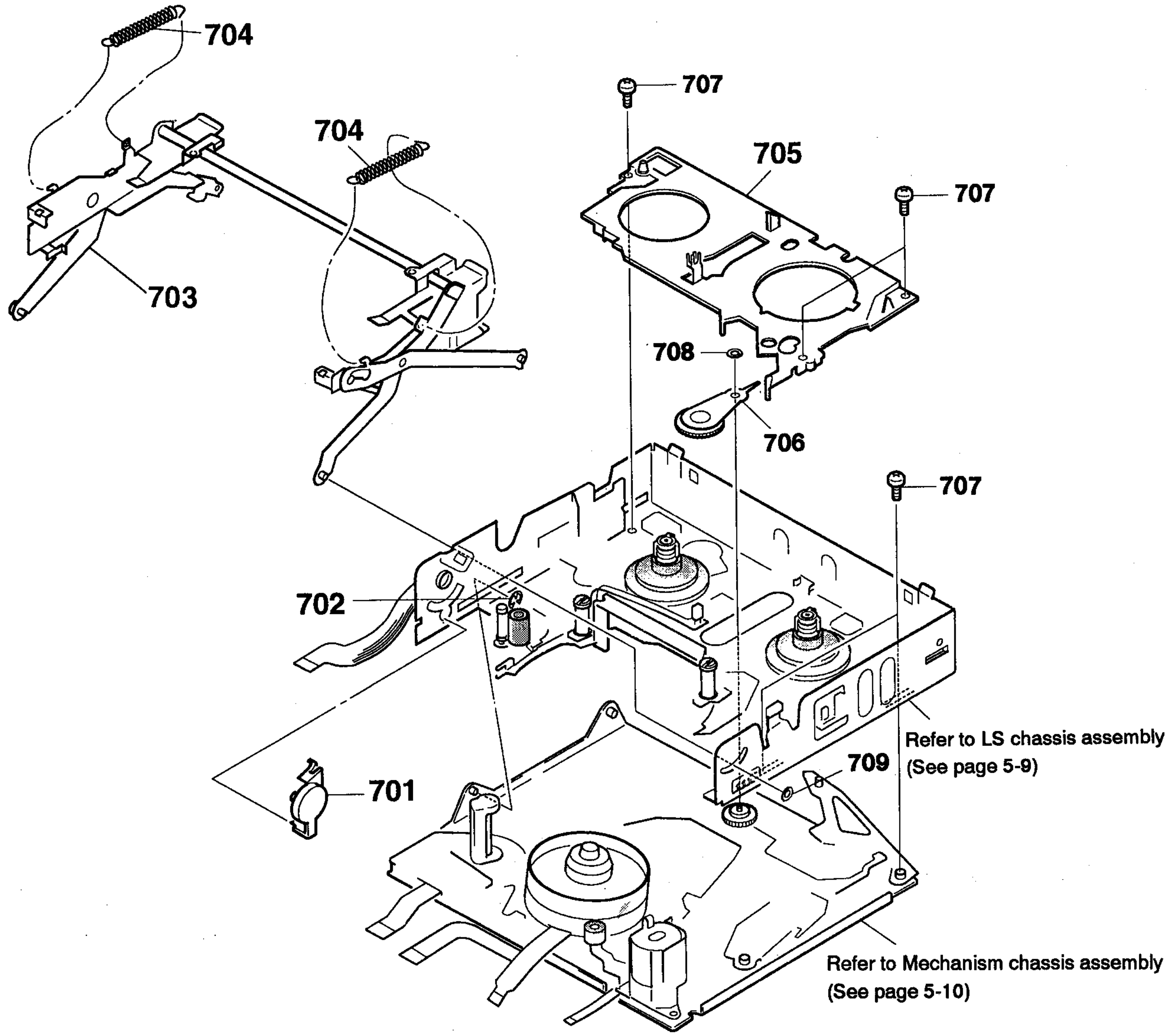
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	1-661-052-11	FP-457 FLEXIBLE BOARD		260	3-713-786-21	SCREW (M2X3)	
252	1-694-076-11	TERMINAL BOARD, BATTERY		261	A-7072-552-A	AV-35 (HC) BOARD, COMPLETE (TR910)	
253	X-3945-929-1	PANEL ASSY, BATTERY (TR910)		261	A-7072-820-A	AV-35 (MCPE) BOARD, COMPLETE (TR710)	
253	X-3946-173-1	PANEL ASSY, BATTERY (TR710)		262	1-660-531-11	FP-429 FLEXIBLE BOARD	
254	3-968-729-01	ACE (M2), LOCK		263	3-948-339-01	SCREW, TAPPING	
255	3-318-203-11	SCREW (B1.7X6), TAPPING		264	3-968-729-01	ACE (M2), LOCK	
256	A-7072-549-A	CD-148 (HC) BOARD, COMPLETE		IC401	A-7030-638-A	CCD BLOCK ASSY (CCD IMAGER)(079 SERVICE)	
257	3-961-192-11	RUBBER (FH), SEAL		J902	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
258	1-547-787-61	FILTER BLOCK, OPTICAL		S903	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
259	3-963-467-11	ADAPTOR (FH), CCD FITTING		S904	1-553-977-00	SWITCH, SLIDE (STANDBY, LOCK)	

5-1-7. LENS DEVICE (LSV-510A/J-N)



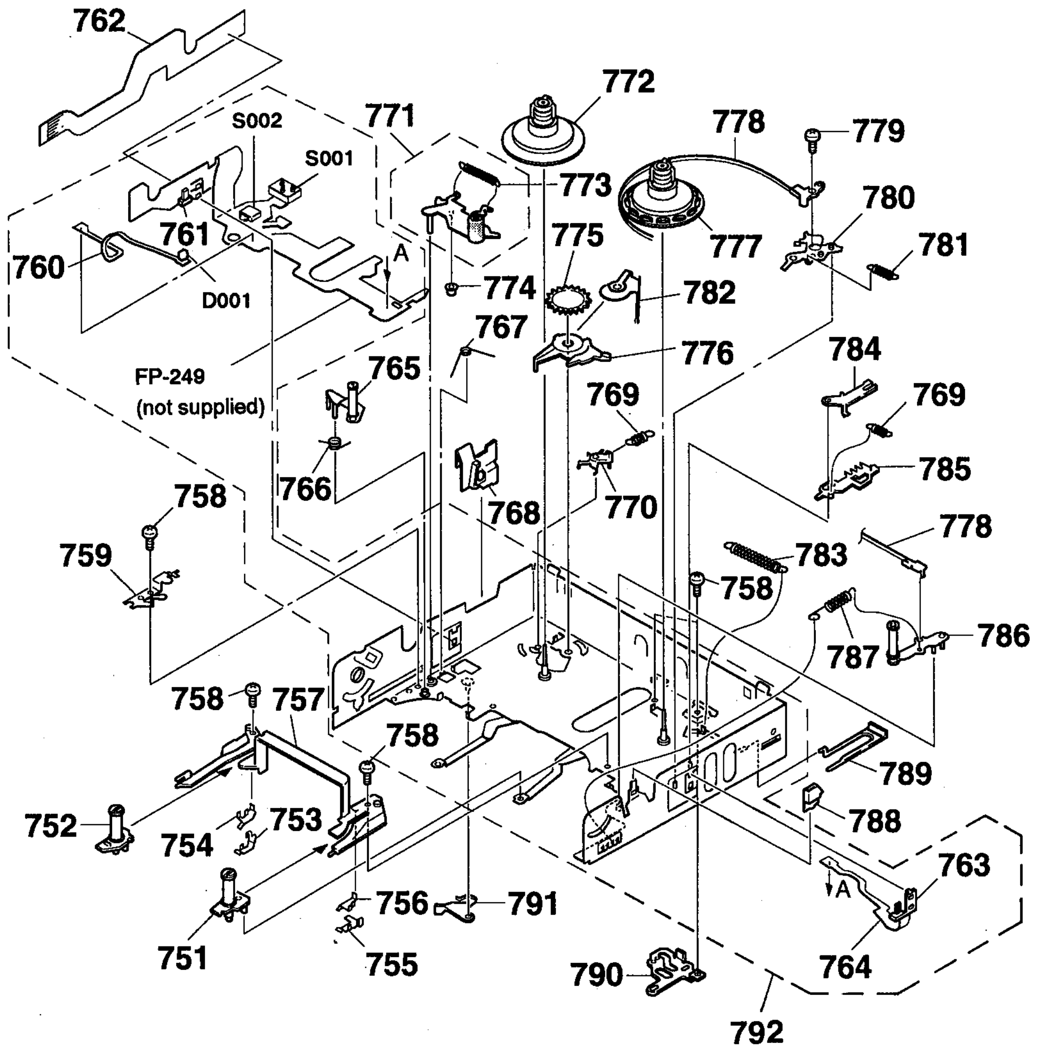
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	8-848-710-01	DEVICE, LENS LSV-510A/J-N		M905	1-698-760-01	MOTOR, FOCUS STEPPING	
302	A-4910-808-A	DEVICE ASSY, LSV-510A (RP)					
303	3-713-791-41	SCREW (M1.7X5), TAPPING, P2		M906	1-698-759-01	MOTOR, ZOOM STEPPING	
304	3-708-302-01	SCREW (BT3 P1.7X4C)					

5-1-8. CASSETTE COMPARTMENT ASSEMBLY


704
704
703
707
705
707
708
706
707
702
701
709
Refer to LS chassis assembly (See page 5-9)
Refer to Mechanism chassis assembly (See page 5-10)

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
701	A-7040-421-A	DAMPER ASSY		706	X-3945-399-1	GEAR ASSY, GOOSENECK	
702	7-624-102-04	STOP RING 1.5, TYPE -E		707	3-947-503-01	SCREW (M1.4X2.5)	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY		708	3-331-007-21	WASHER	
704	3-965-587-01	SPRING, TENSION		709	3-727-176-01	WASHER, STOPPER	
705	3-965-584-01	RETAINER, GOOSENECK					

5-1-9. LS CHASSIS ASSEMBLY


762
772
S002
771
778
779
S001
773
780
761
775
777
781
760
774
782
D001
A
767
776
765
784
FP-249
(not supplied)
769
769
785
766
758
768
770
778
759
783
758
786
787
758
757
758
789
752
753
788
754
763
A
756
791
751
755
790
764
792

Ref. No.	Part No.	Description	Remark
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR)	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR)	
* 764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (HI8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	

SECTION 6
ADJUSTMENTS

6-1. CAMERA SECTION ADJUSTMENTS

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Color monitor
- Regulated power supply
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)Note 1	J-6082-053-B	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	CPC-5 jig	J-6082-351-A	For the color viewfinder adjustment For adjusting the video section
J-8	Power code	J-6082-233-A	For connecting the battery terminal and DC power supply
J-9	AFM DEV jig	J-6082-312-A	For adjusting the deviation
J-10	Extension cable (60P, 0.5 mm)	J-6082-356-A	For extension between the HI-39 board (CN501) and VC-177 board (CN110)
J-11	Clear chart	J-6080-621-A	
J-12	Extension cable (16P, 0.5 mm)	J-6082-357-A	For extension between the CD-148 board (CN112) and VC-177 board (CN112)

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

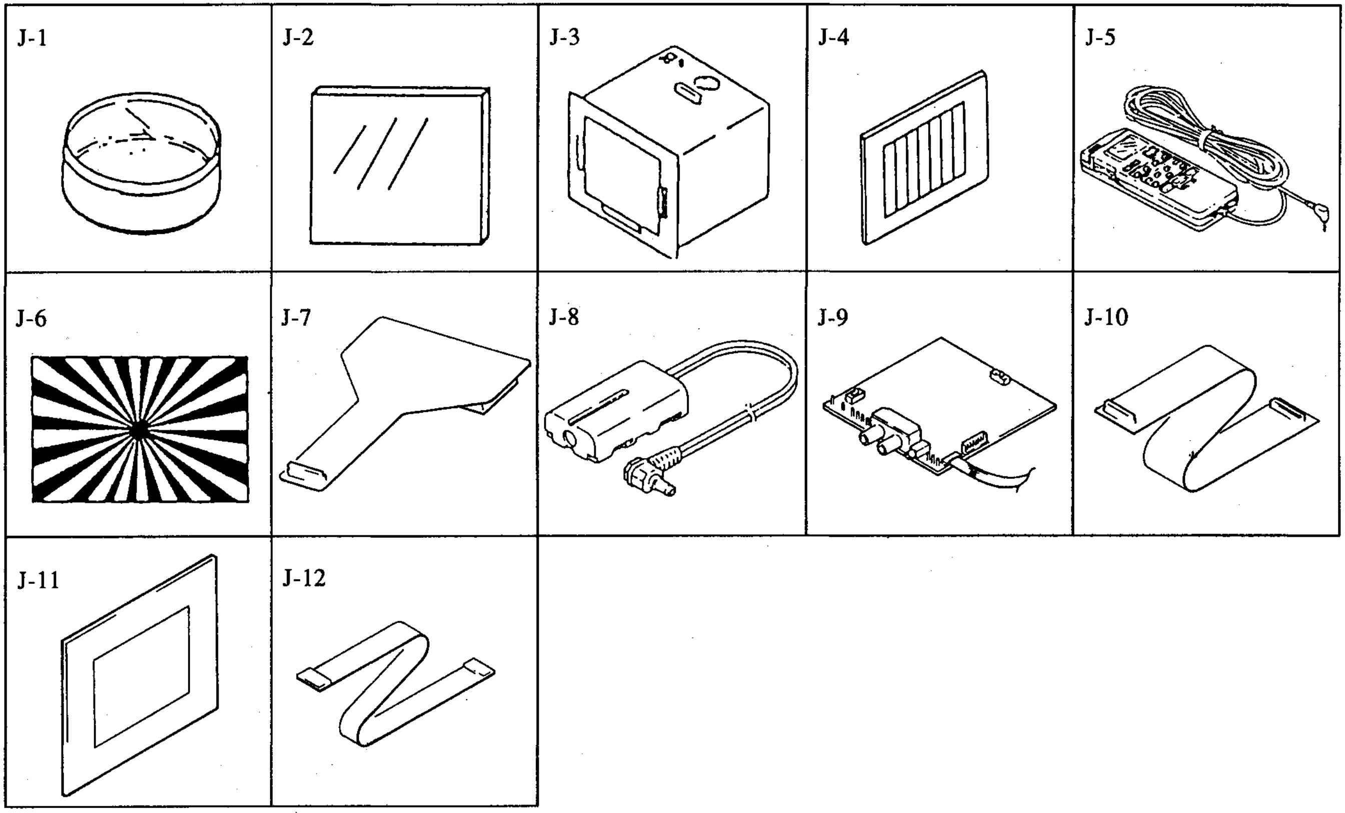

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12

Fig. 6-1-1.

1-1-2. Preparations

Note 1: Refer to "Section 2. DISASSEMBLY" for details of how to remove the cabinet and boards.

Note 2: If performing only adjustments, the lens block and VC-177 board need not be adjusted.

1) Connect the adjusting equipment according to Fig. 6-1-3.
2) The F panel block (MA-268 board) is not needed to connect to the unit. Disconnect the following connectors when removing the F panel block.
   1. CN107 of VC-177 board (14P, 0.5 mm)
3) By setting the "forced camera power ON mode", the camera power supply can be turned on even if the camera power supply (R) (CF block, LC-52 board) has been removed. However, focus operations cannot be performed. Disconnect the following connectors when removing the cabinet (R).
   1. CN111 of VC-177 board (20P, 0.5 mm)
   2. CN502 of HI-39 board (24P, 0.5 mm)

After the adjustments, be sure to exit the "forced camera power supply ON mode".

Note 3: Setting the "forced camera power supply ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.

The camera power supply can be turned ON even if the cabinet (R) has been removed using the above steps. After completing adjustments, be sure to exit the "forced power supply ON mode".

Note 4: Exiting the "forced camera ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 1, address: 01.

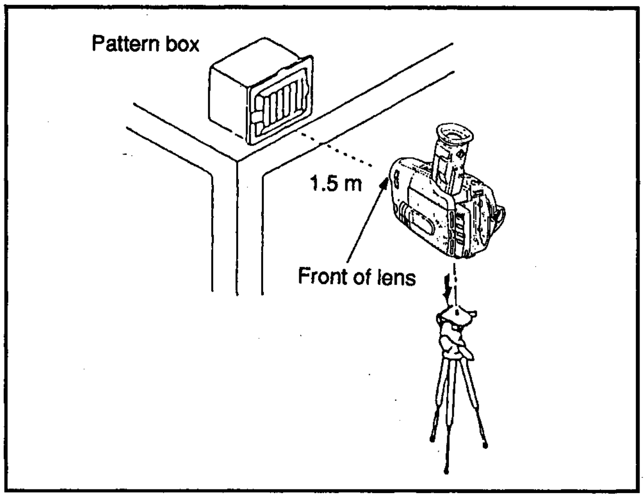


Fig. 6-1-2.

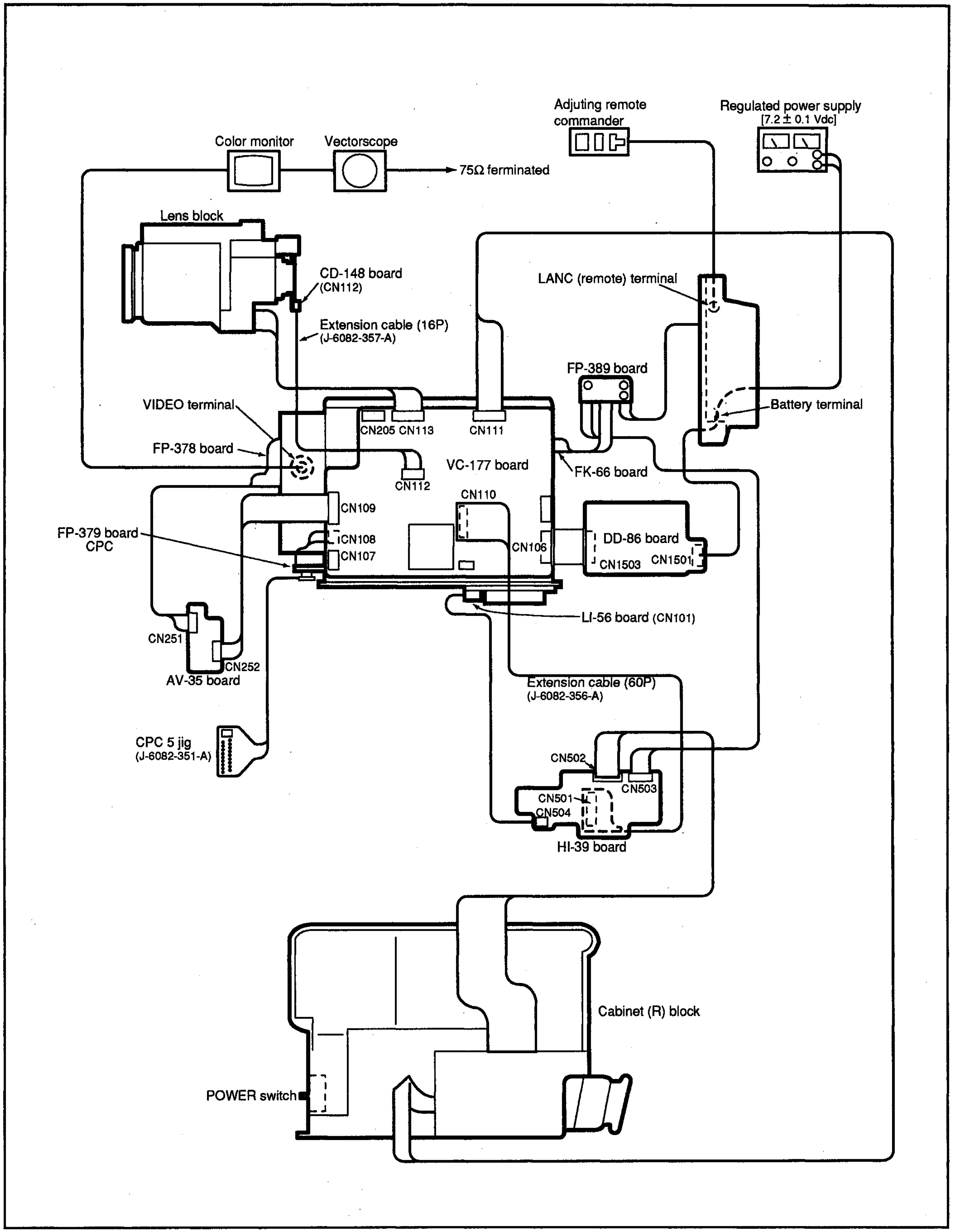

Adjuting remote commander
Regulated power supply [7.2 ± 0.1 Vdc]
Color monitor
Vectorscope
75Ω ferminated
Lens block
CD-148 board (CN112)
Extension cable (16P) (J-6082-357-A)
LANC (remote) terminal
FP-389 board
Battery terminal
VIDEO terminal
FP-378 board
CN205 CN113
CN111
VC-177 board
CN112
FK-66 board
CN110
CN109
FP-379 board CPC
CN108
CN107
CN106
DD-86 board
CN1503
CN1501
LI-56 board (CN101)
CN251
CN252
AV-35 board
Extension cable (60P) (J-6082-356-A)
CPC 5 jig (J-6082-351-A)
CN502
CN503
CN501
CN504
HI-39 board
Cabinet (R) block
POWER switch

Fig. 6-1-3.

1-1-3. Precautions

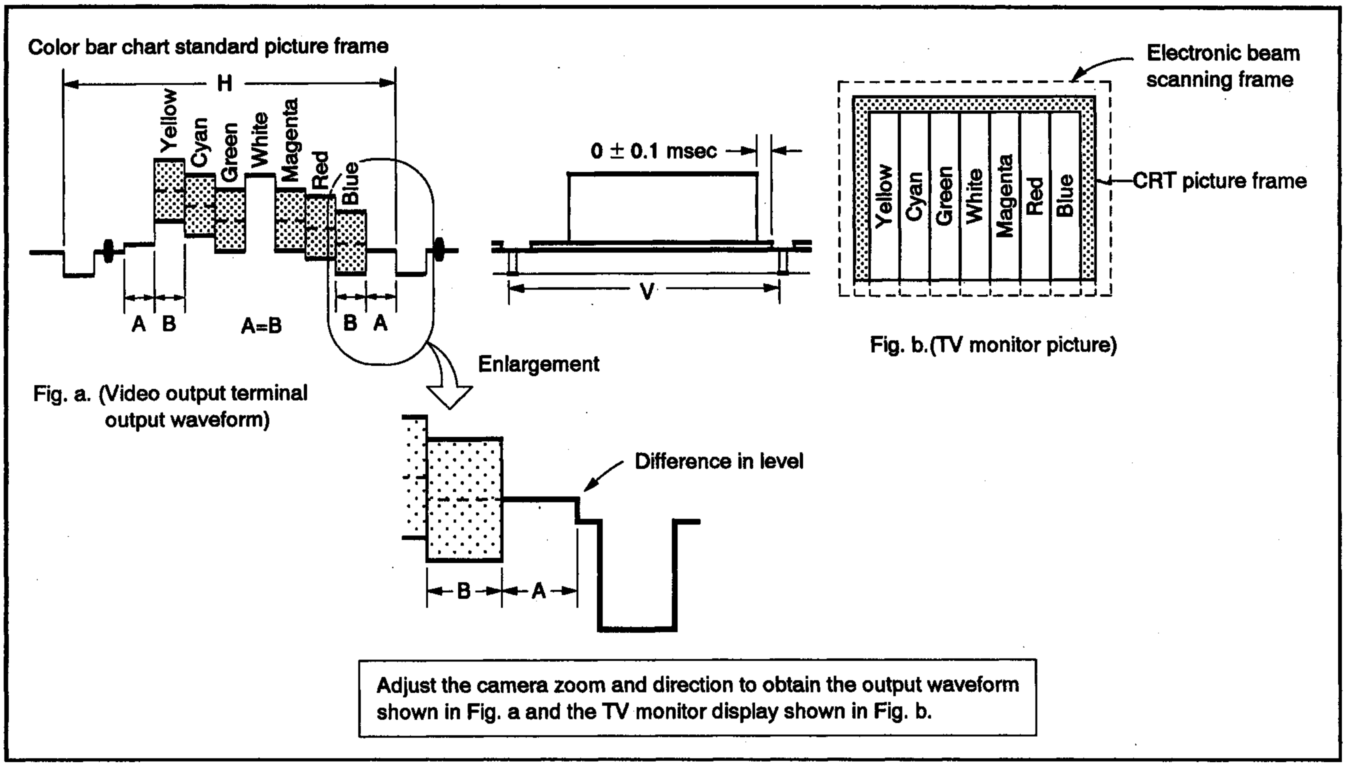
1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Camera/VTR power switch (S101 on CF block) .... Camera
2. Digital zoom switch (Menu display) .... Off
3. Steady shot switch (S103 on CF block) .... Off
4. Focus switch (S102 on CF block) .... Manual
5. Back light switch (S106 on CF block) .... Off
6. 16:9 WIDE button (S114 on CF block) .... Off
7. Picture effect button (S112 on CF block) .... Off

2. Adjusting Procedure

Adjust in the given order.


Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
Fig. a. (Video output terminal output waveform)
0 ± 0.1 msec
V
Enlargement
Difference in level
B
A
Electronic beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 6-1-4.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 6-1-4. if adjustments are performed using the color bar chart. (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm x 841 mm) paper to a black one, and make the chart shown in Fig. 6-1-5.

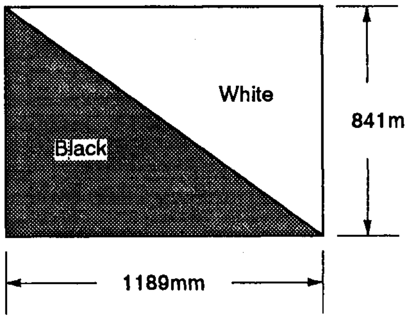

White
Black
841mm
1189mm

Fig. 6-1-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

1-1-4. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote terminal.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 6-1-6.

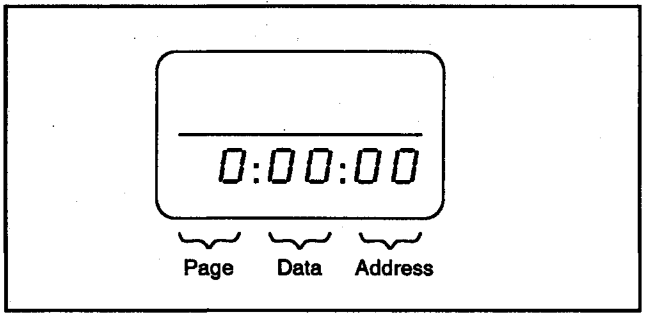


Fig. 6-1-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.
   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▷) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 0, address: 01, and set the data to 01, and enables Page D and E,F to be adjusted.
5) After completing all adjustments, set data: 00 to page: 0, address: 01 and turn off the main power supply (7.2V) once.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 6-1-1.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

1-1-5. Page F Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page F, Page E Data Initialization" and "Page F Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Note 3: ( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
00	A5	A7	
01			
02	(03)[04]	03	
03			
04			
05	B4	B4	
06	B8	B8	
07	5E	5E	
08	49	49	
09	59	59	
0A	6B	6B	
0B	8D	8D	
0C			
0D			
0E			
0F			
10	00	00	
11	00	00	
12	00	00	
13	00	00	
14	00	00	
15	00	00	
16	00	00	
17	00	00	
18	00	00	
19	00	00	
1A	00	00	
1B	00	00	
1C	76	76	←
1D	00	00	←
1E	21	21	←
1F	12	12	←
20	00	00	←
21	40	40	←
22	3B	3B	
23	00	00	←

Table 6-1-2 (1).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
24	7C	7C	←
25	80	80	←
26	1F	1F	←
27	(40)[41]	40	←
28	46	44	←
29	00	00	
2A	FE	FE	
2B	3B	3B	
2C	77	77	
2D	56	56	
2E	A6	A6	
2F	1A	1A	
30	15	15	
31	24	24	
32	8C	8C	
33	11	11	
34	00	00	
35	00	00	
36	00	00	
37	0A	0A	
38	15	15	
39	81	81	
3A	A0	A0	
3B	80	80	
3C	80	80	
3D	30	30	
3E	1B	1B	
3F	1B	1B	
40	AE	AE	
41	42	42	
42	44	44	
43	34	34	
44	2A	2A	
45	89	89	
46	59	59	
47	38	38	
48	41	41	
49	25	25	
4A	00	00	
4B	19	19	
4C	00	00	
4D	16	16	
4E	00	00	
4F	36	36	

Table 6-1-2 (2).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
50	7B	7B	
51	9D	9D	
52	80	80	
53	80	80	
54	00	00	
55	00	00	
56	00	00	←
57	00	00	←
58	00	00	←
59	AA	AA	←
5A	B8	B8	←
5B	B8	B8	←
5C	3C	3C	
5D	00	00	←
5E	7A	7A	
5F	8D	8D	
60	7A	7A	
61	3A	3A	←
62	B0	B0	
63	00	00	
64	AA	AA	
65	30	30	←
66	60	60	
67	7C	7C	
68	30	30	←
69	40	40	←
6A	28	28	←
6B	00	00	←
6C	6A	6A	←
6D	15	15	←
6E	47	47	←
6F	15	15	←
70	70	70	
71	70	70	
72	70	70	
73	70	70	
74	69	69	
75	75	75	
76	B8	B8	
77	B8	B8	
78	B8	B8	
79	B8	B8	
7A	7E	7E	
7B	7E	7E	

Table 6-1-2 (3).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
7C	7E	7E	
7D	7E	7E	
7E	90	90	
7F	80	80	
80	A8	A8	←
81	80	80	←
82	0C	0C	←
83	19	19	←
84	77	77	←
85	40	40	←
86	75	75	←
87	93	93	←
88	12	12	←
89	8A	8A	←
8A	A5	A5	←
8B	68	68	←
8C	4A	4A	←
8D	F0	F0	←
8E	00	00	←
8F	01	01	←
90	68	68	←
91	80	80	←
92	70	70	←
93	60	60	←
94	68	68	←
95	70	70	←
96	40	40	←
97	2E	2E	←
98	58	58	←
99	A0	A0	←
9A	30	30	←
9B	14	14	←
9C	58	58	←
9D	C0	C0	←
9E	30	30	←
9F	26	26	←
A0	78	78	←
A1	70	70	←
A2	4C	4C	←
A3	06	06	←
A4	58	58	←
A5	D0	D0	←
A6	60	60	←
A7	0F	0F	←

Table 6-1-2 (4).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
A8	62	62	←
A9	91	B3	←
AA	62	62	←
AB	A2	A2	←
AC	62	62	←
AD	91	80	←
AE	62	62	←
AF	A2	A2	←
B0	04	04	←
B1	E5	E5	←
B2	04	04	←
B3	F7	F7	←
B4	40	73	←
B5	00	00	←
B6	B3	B3	←
B7	B3	B3	←
B8	21	21	←
B9	05	05	←
BA	11	11	←
BB	06	06	←
BC	71	71	←
BD	15	15	←
BE	20	20	←
BF	00	00	←
C0	22	22	←
C1	80	80	←
C2	22	22	←
C3	20	20	←
C4	40	40	←
C5	00	00	←
C6	40	40	←
C7	00	00	←
C8	00	00	←
C9	27	27	←
CA	CA	CA	←
CB	00	00	←
CC	40	40	←
CD	C4	C4	←
CE	1B	1B	←
CF	D8	D8	←
D0	A0	A0	←
D1	30	30	←
D2	20	20	←
D3	C0	C0	←

Table 6-1-2 (5).

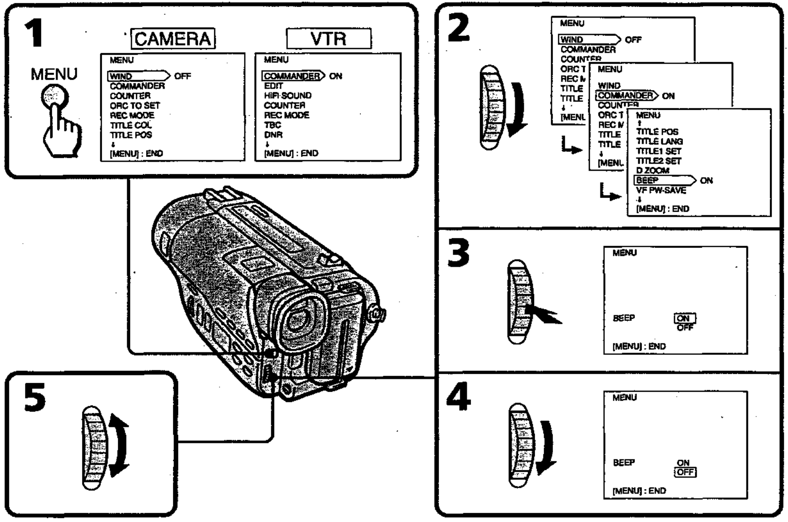
Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
D4	6A	6A	←
D5	60	60	←
D6	55	55	←
D7	55	55	←
D8	66	66	←
D9	25	25	←
DA	34	34	←
DB	3F	3F	←
DC	A0	A0	←
DD	00	00	←
DE	80	80	←
DF	00	00	
E0	F7	F7	
E1	1A	1A	
E2	33	33	
E3	FE	FE	
E4	3C	3C	
E5	24	24	
E6	83	83	
E7	A0	A0	
E8	67	67	
E9	4D	4D	
EA	33	33	
EB	5C	5C	
EC	5C	5C	
ED	5C	5C	
EE	3C	3C	
EF	0F	0F	
F0	10	10	
F1	2C	2C	
F2	0A	0A	
F3	36	36	
F4	72	72	
F5	46	46	
F6	E0	E0	
F7	50	50	
F8	3B	3B	
F9	14	14	
FA	E8	E8	
FB	90	90	
FC	00	00	
FD	02	02	
FE	F3	F3	
FF	A0	A0	

Table 6-1-2 (6).

Changing the mode settings

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

(1) Press MENU to display the menu.
(2) Turn the control dial so that the desired item is highlighted white.
(3) Press the control dial. The setting menu appears.
(4) Turn the control dial to highlight a setting, and press the control dial to select it.
(5) If you want to change the other modes, repeat steps 2 to 4.
(6) Press MENU to erase the menu display.


1
MENU
CAMERA
MENU
WIND OFF
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
↓
[MENU] : END
VTR
MENU
COMMANDER ON
EDIT
HiFi SOUND
COUNTER
REC MODE
TBC
DNR
↓
[MENU] : END
2
MENU
WIND OFF
COMMANDER
MENU
WIND
COMMANDER ON
MENU
↑
TITLE POS
TITLE LANG
TITLE1 SET
TITLE2 SET
D ZOOM
BEEP ON
VF PW-SAVE
↓
[MENU] : END
3
MENU
BEEP ON OFF
[MENU] : END
4
MENU
BEEP ON OFF
[MENU] : END
5

Selecting the mode setting of each item

Items for both CAMERA and VTR modes

COUNTER* <NORMAL/TIME CODE> (CCD-TR910 only)
- Normally select NORMAL.
- Select TIME CODE to display the RC time code in order to edit more precisely. Even if the battery is disconnected from the camcorder, the RC Time code is not canceled.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

BEEP* <ON/OFF>
- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

VF PW-SAVE* <ON/OFF>
- Select ON so that the picture in the viewfinder appears only when you bring your face close to the viewfinder.
- Select OFF when you want to display the picture in the viewfinder all the time.

REC MODE* <SP/LP>
- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.
  When recording with the Hi8 system, you cannot record in LP (long play) mode.

Items for CAMERA mode only

WIND <ON/OFF>
- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

ORC TO SET* <ORC ON>
Select this item and press the START/STOP button to automatically adjust the recording condition to get the best possible recording. If you have already perform this function, "ORC ON" is displayed.

D ZOOM* <ON/OFF>
- Select ON to activate digital zooming.
- Select OFF to not use the digital zoom. The camera goes back to 15x zoom.

AUTO DATE* <ON/OFF> (CCD-TR710 only)
- Select ON to record the date for 10 seconds after recording has started.
- Select OFF to not record the date.

REC LAMP* <ON/OFF>
- Select OFF when you do not want the camera recording/battery lamp at the front of the unit to light up.
- Normally select ON.

TITLE COL* <WHITE/YELLOW/VIOLET/RED/CYAN/GREEN/BLUE>
Select the color of the title.

Changing the mode settings

TITLE POS* <CENTER/BOTTOM>
- Select CENTER to center the title in the picture.
- Select BOTTOM to position the title at the bottom of the picture.

TITLE LANG* <ENGLISH/ FRANÇAIS/ ESPAÑOL/ PORTUGUÊS>
Select the language of the preset titles.

TITLE 1 SET* TITLE 2 SET*
Select to store your own original titles.

CLOCK SET*
Select this item to reset the date or time.

Items for VTR mode only

EDIT <ON/OFF>
- Select ON to minimize picture deterioration when editing.
- Normally select OFF.

HiFi SOUND <STEREO/1/2>
- Normally select STEREO.
- Select 1 or 2 to play back a dual sound track tape.

TBC* <ON/OFF> (CCD-TR910 only)
- Select ON to correct for jitter.
- Select OFF not to correct for jitter.
  When you use an old tape on which video games images have been recorded or which has been recorded over many times, set TBC to OFF.

DNR* <ON/OFF> (CCD-TR910 only)
- Select ON to reduce picture noise.
- Select OFF not to reduce noise.
  If you mind afterimages crated by shooting a rapid moving subject, we recommend selecting the OFF function.

* These settings are retained even when the battery is removed, as long as the lithium battery is in place.

Fade-in and fade-out

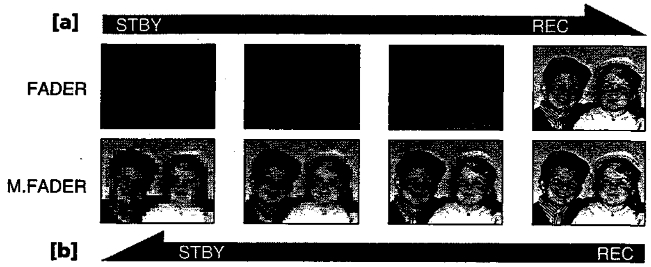
You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound increases. When fading out, the picture gradually fades to black or mosaic while the sound decreases.

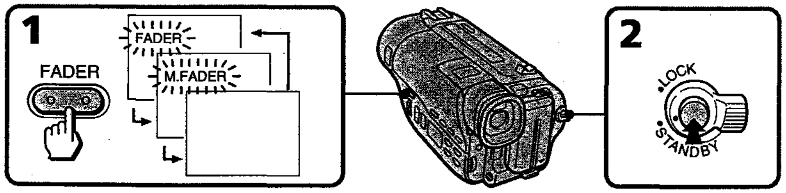
When fading in [a]

(1) While the camcorder is in Standby mode, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

(1) During recording, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.





To cancel the fade-in/fade-out function

Before pressing START/STOP, press FADER until the fade indicator disappears.

When the date or time indicator is displayed
The date or time indicator does not fade in or fade out.

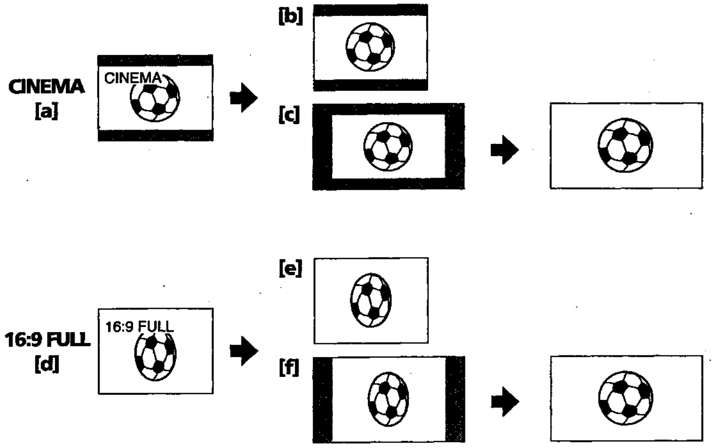
When the title is displayed
You cannot use the FADER function. When FADER is set, you cannot superimpose a title.

When START/STOP MODE switch is set to 5 SEC or ⊥
You cannot use the FADER function.

Using the wide mode function

Selecting the desired mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).



CINEMA

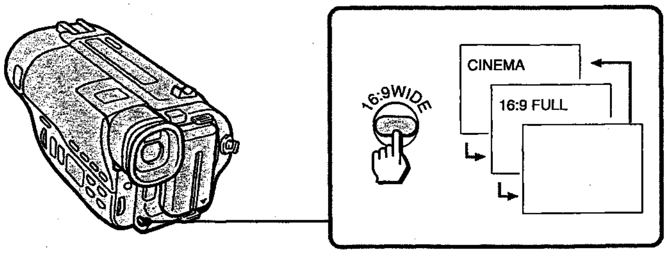
Black bands appear at the top and the bottom of the screen, and the viewfinder **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**. When you choose the CINEMA mode, DATE, TIME and the battery indicators are displayed above.

16:9 FULL

The picture in the viewfinder **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

Using the wide mode function

While the camcorder is in Standby mode, press 16:9 WIDE repeatedly so that the desired mode indicator appears in viewfinder. While recording you cannot change the mode.



To cancel wide mode

Press 16:9 WIDE repeatedly until the wide mode indicator disappears.

To watch the tape recorded in wide mode

To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

Notes on wide mode

- If wide mode is set to 16:9 FULL, the Steady Shot function does not work and the "✋" indicator flashes.
- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.
- The wide mode is canceled automatically 5 minutes after you remove the power source.
- When recording, you cannot change the mode. (While the camcorder is in Standby mode, you can change the mode.)

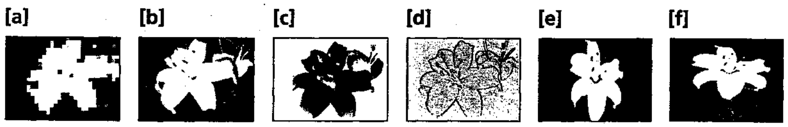
When you connect the camcorder to a video ID system (ID-1) TV

The picture changes to the wide mode automatically when you play a video tape recorded in wide mode.

Enjoying picture effect

Selecting picture effect

You can make pictures like those of television with the Picture Effect function.



MOSAIC [a]
The picture is mosaic.

SOLARIZE [b]
The light intensity is more clear, and the picture looks like an illustration.

B&W
The picture is monochrome (black and white).

SEPIA
The picture is sepia.

NEG. ART [c]
The picture is reversed.

PASTEL [d]
Emphasizes contrast and gives the picture animation-like colors.

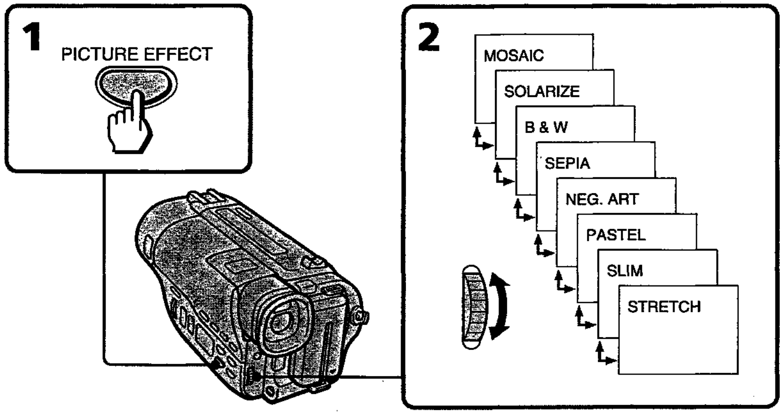
SLIM [e]
The picture expands vertically.

STRETCH [f]
The picture expands horizontally.

Enjoying picture effect

Using picture effect function

(1) Press PICTURE EFFECT to display the Picture Effect menu.
(2) Turn the control dial to highlight a picture effect.



To turn off picture effect
Press PICTURE EFFECT. The indicator in the viewfinder goes out.

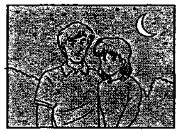
Note on the picture effect
- The Picture Efect menu cycle as follows: MOSAIC ←→ SOLARIZE ←→ B&W ←→ SEPIA ←→ NEG.ART ←→ PASTEL ←→ SLIM ←→ STRETCH
- When you turn the power off, the camcorder returns automatically to normal mode.

Focusing manually

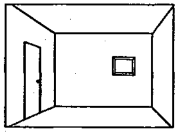
When to use manual focus

In the following cases you should obtain better results by adjusting the focus manually.

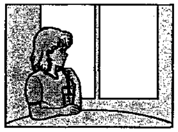
[a]



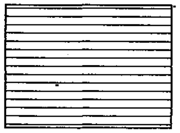
[b]



[c]



[d]



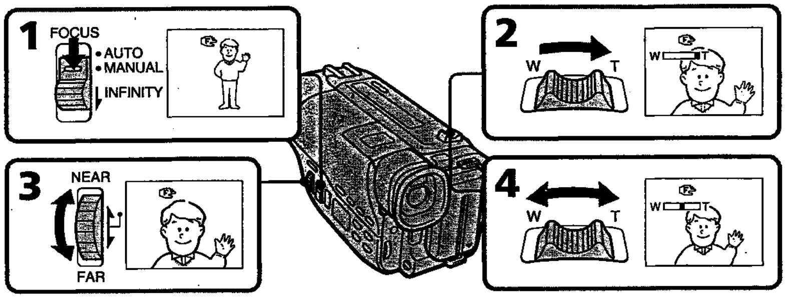
- Insufficient light **[a]**
- Subjects with little contrast – walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting the light
- Shooting a stationary subject when using a tripod

Focusing manually

Focusing manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Set FOCUS to MANUAL. The ◎ indicator appears in the viewfinder.
(2) Move the power zoom lever to the "T" side until the lever reaches the end.
(3) Turn the FAR/NEAR dial to achieve a sharp focus. Be sure not to touch the built-in microphone when you turn the FAR/NEAR dial.
(4) Set the desired shot length using the power zoom lever.



To return to autofocus mode

Set FOCUS to AUTO. The ◎ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide-angle after focusing in the telephoto position.

To record a very distant subject

Push FOCUS down to INFINITY. The lens focuses on the most distant subject while FOCUS is held down. When it is released, manual focus mode is resumed.
Use this function when shooting through a window or a screen, to focus on a most distant subject.

Note on manual focusing
The ◎ indicator changes to the following indicator:
▲: When recording a very distant subject.
●: When there is something too close to focus on.

Using the PROGRAM AE function

You can select from six PROGRAM AE (Auto Exposure) modes to suit your shooting situation.

Selecting the best mode

Select one of six modes, referring to the following.

Spotlight mode
For subjects in spotlight, such as at the theater or a formal event.

Soft Portrait mode
For zooming in on a still subject in telephoto mode, or for a subject behind an obstacle such as a screen. Creates a soft background for subjects such as people or flowers, and faithfully reproduces skin color.

Sports Lesson mode
For recording fast-moving subjects such as in tennis or golf games.

Beach & Ski mode
For people or faces in strong light or reflected light, such as at a beach in midsummer or on a skiing ground.

Sunset & Moon mode
For recording subjects in dark environments such as sunsets, fireworks, neon signs, or general night views.

Landscape mode
For distant subjects (more than 10 meters away) such as mountains or when recording a subjct behind an obstacle such as a window or screen.

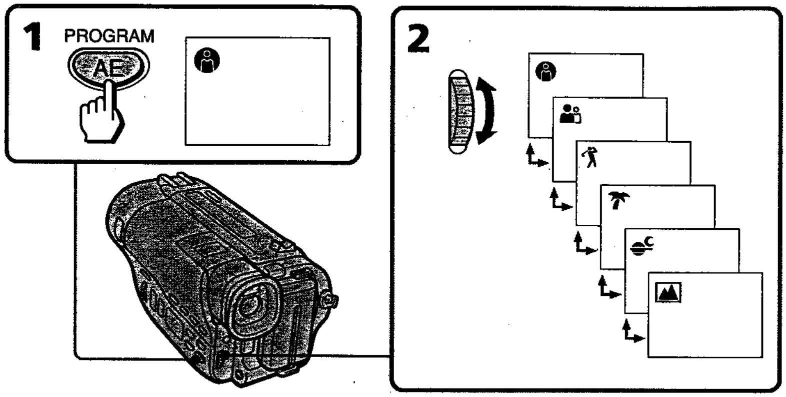
While selecting spotlight mode, sports lesson mode or beach & ski mode
The camcorder automatically controls the auto focus function not to focus on close subject.

While selecting sunset mode or landscape mode
The camcorder automatically controls the auto focus function to focus on a distant view.

Using the PROGRAM AE function

Using the PROGRAM AE function

(1) Press PROGRAM AE.
(2) Turn the control dial to select the desired PROGRAM AE mode.



To turn off program AE
Press PROGRAM AE.

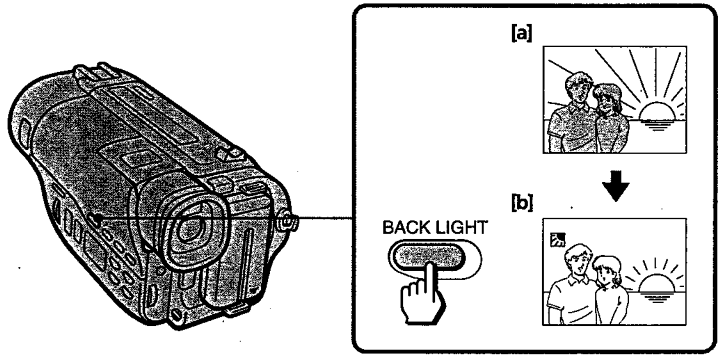
Note on shutter speed
The shutter speed in each PROGRAM AE mode is as follows:
Soft portrait mode — from 1/60 to 1/500
Sports lesson mode — from 1/250 to 1/4000
Beach & ski mode — from 1/60 to 1/250

When program AE is functioning
You can adjust the exposure.

Shooting with backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ▨ indicator appears in the viewfinder.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting
Be sure to release this adjustment condition by pressing BACK LIGHT again. The ▨ indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under the following conditions:
- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

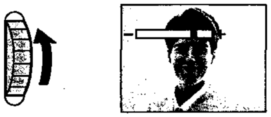
When you press the EXPOSURE button
The BACK LIGHT function is canceled.

Adjusting the exposure

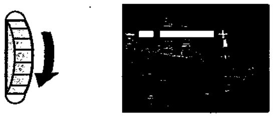
When to adjust the exposure

When you shoot in a snowfield or on a beach in the mid-summer and the subject may become dark because of the extreme brightness, you can change the brightness of the picture. You can also use this function when the subject is too bright-subjects on stages, night views, etc.

[a]



[b]

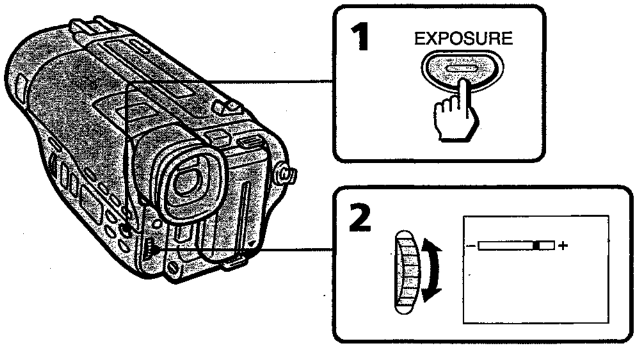


[a] Turn the control dial up when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the control dial down when:
- Bright subject and dark background
- To record the darkness faithfully

Adjusting the exposure

(1) Press EXPOUSURE.
(2) Turn the control dial to adjust the brightness.



To return to automatic exposure mode

Press EXPOSURE again.

Shooting with the sun behind you
If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark
We recommend you to use a video light (not supplied). To get the best color, you must maintain a sufficient light level.

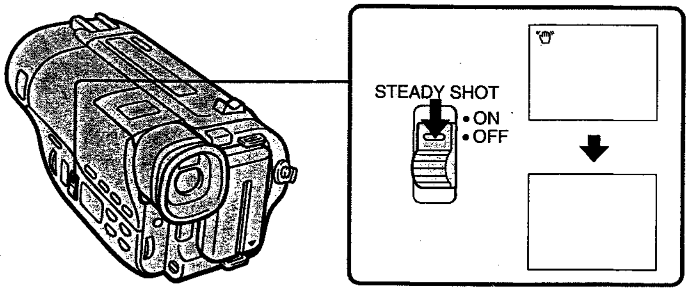
When you adjust the exposure manually
- BACK LIGHT does not operate.
- Manual adjustment of exposure returns to automatic exposure mode when you press the PROGRAM AE button.

Releasing the STEADY SHOT function

When you shoot, the ✋ indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

You can release the Steady Shot function when you do not need to use the Steady Shot function. Do not use the Steady Shot function when shooting a stationary object with a tripod.

Set STEADY SHOT to OFF.
The ✋ indicator disappears.



To activate the Steady Shot function again

Set STEADY SHOT to ON.
The ✋ indicator appears.

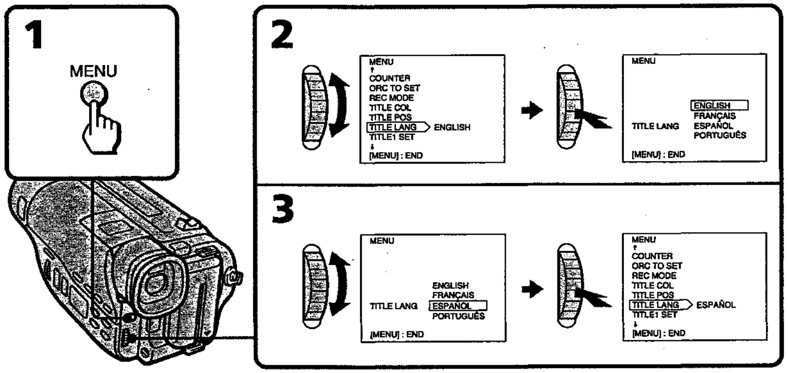
Notes on the Steady Shot function
- The Steady Shot function will not correct excessive camera-shake.
- When you switch the Steady Shot function on or off, the exposure may fluctuate.
- The Steady Shot function does not operate when you select the 16:9 FULL mode.

Superimposing a title

You can select one of eight preset titles. You can also select the language, position, and color of titles in the menu system.

Selecting the language

(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE LANG and press the control dial to select it.
The language menu apperas.
(3) Turn the control dial to highlight a language, and press the control dial to select it.
(4) Press MENU to erase the menu display.


1
MENU
2
MENU
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG ENGLISH
TITLE1 SET
[MENU] : END
MENU
TITLE LANG
ENGLISH
FRANÇAIS
ESPAÑOL
PORTUGUÊS
[MENU] : END
3
MENU
TITLE LANG
ENGLISH
FRANÇAIS
ESPAÑOL
PORTUGUÊS
[MENU] : END
MENU
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG ESPAÑOL
TITLE1 SET
[MENU] : END

Using titles

To add the title from the beginning

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it flashes. When the desired title appears, wait for it to stop flashing.
Titles cycle as follows:
Original title 1 → Original title 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATULATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
After "THE END" the title indicator goes off once and returns to Original title 1 again.
(2) Press START/STOP to start recording.
(3) When you want to stop recording the title, press TITLE.

If you have not stored any original titles

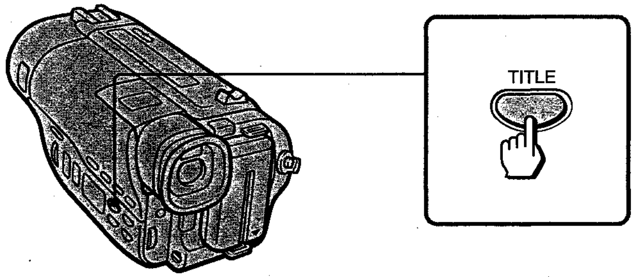
The titles begin from "HELLO!".

Note on titles

The contents and the order of titles are different depending on the languages.

To add the title while you are recording

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it flashes.
(2) When the desired title appears, wait for it to stop flashing, and press TITLE again to erase the title from the display.
(3) Press START/STOP to start recording.
(4) When you reach the point where you want to add the title, press TITLE.
(5) When you want to stop recording the title, press TITLE again.

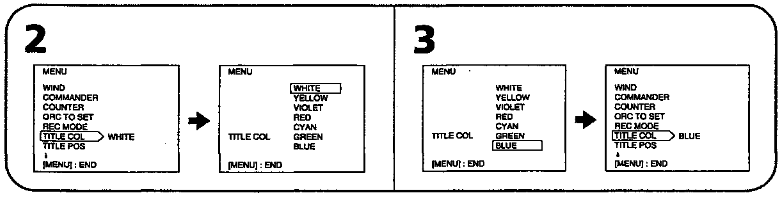


Notes on superimposing a title

- You cannot select a title while you are recording.
- FADER does not work while the title is displayed.
- A title, a date and time cannot be recorded at the same time.
- When fading in or out you cannot display a title.
- If you display the menu while superimposing a title, the title is not recorded while the menu is being displayed.

To select the color of the title

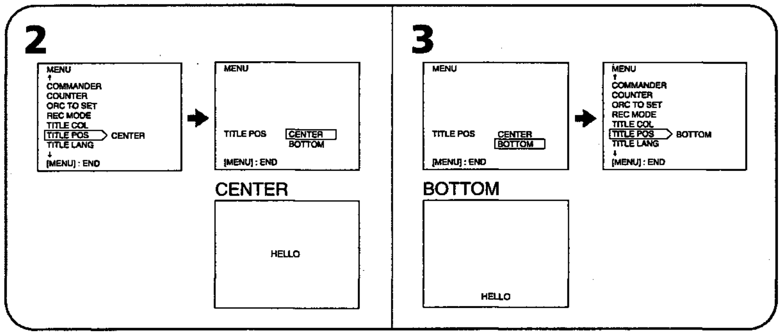
(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE COL and press the control dial to select it.
The color menu appears.
(3) Turn the control dial to highlight a color, and press the control dial to select it.
You can choose from the following 7 colors:
WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE
(4) Press MENU to erase the menu display.


2
MENU
WIND
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL WHITE
TITLE POS
[MENU] : END
MENU
TITLE COL
WHITE
YELLOW
VIOLET
RED
CYAN
GREEN
BLUE
[MENU] : END
3
MENU
TITLE COL
WHITE
YELLOW
VIOLET
RED
CYAN
GREEN
BLUE
[MENU] : END
MENU
WIND
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL BLUE
TITLE POS
[MENU] : END

Superimposing a title

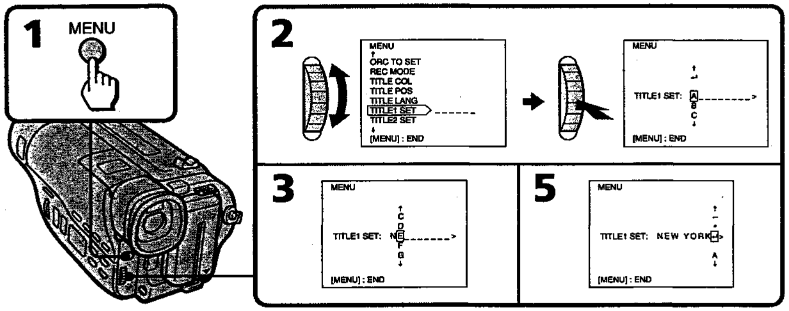
To select the position of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu in the viewfinder.
(2) Turn the control dial to select TITLE POS and press the control dial to select it.
The position menu appears.
(3) Turn the control dial to highlight CENTER or BOTTOM, and press the control dial to select it.
(4) Press MENU to erase the menu display.


2
MENU
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
CENTER
TITLE LANG
[MENU] : END
MENU
TITLE POS
CENTER
BOTTOM
[MENU] : END
CENTER
HELLO
3
MENU
TITLE POS
CENTER
BOTTOM
[MENU] : END
MENU
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
BOTTOM
TITLE LANG
[MENU] : END
BOTTOM
HELLO

Making your own original titles

You can make up to two titles and store them in the camcorder. Eject the cassette before you begin. Your title can have up to 22 letters.
(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE 1 SET or TITLE 2 SET and press the control dial to select it.
(3) Turn the control dial to highlight a letter, and press the control dial to select it.
(4) Repeat step 3 until you finish the title.
(5) When you are finished, turn the control dial to highlight ↵ and press control dial to select it.
The title is stored.
(6) Press MENU to erase the menu display.


1
MENU
2
MENU
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
TITLE1 SET
TITLE2 SET
[MENU] : END
MENU
TITLE1 SET:
A
B
C
[MENU] : END
3
MENU
TITLE1 SET: N
C
D
E
F
G
[MENU] : END
5
MENU
TITLE1 SET: NEW YORK
A
[MENU] : END

To edit a title you have stored

In step 2, select TITLE 1 SET or TITLE 2 SET, whichever title you want to edit is stored in. Then change the title.

Instead of selecting ↵ in step 5 to store the title
You can do one of the following:
- Enter 22 letters.
- Press MENU.

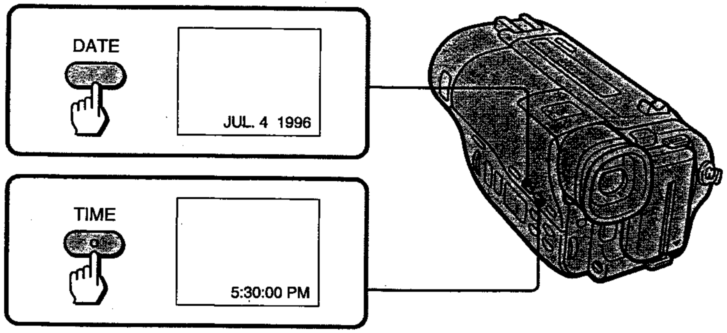
If you do nothing more than 5 minutes while a cassette is in the camcorder
The power goes off automatically. Turn STANDBY down once, turn it again up and proceed from step 1.

When you enter 22 letters in step 4
The title is stored automatically. (You do not need to go to step 5.)

To delete a title
At the leftmost character position, select ↵ and press the control dial. Do not erase the title by selecting empty spaces. If you do so, a title full of empty spaces is stored.

Recording with the date or time

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.
The clock is already set to East Coast Standard Time at the factory. You can reset the clock in the menu system.



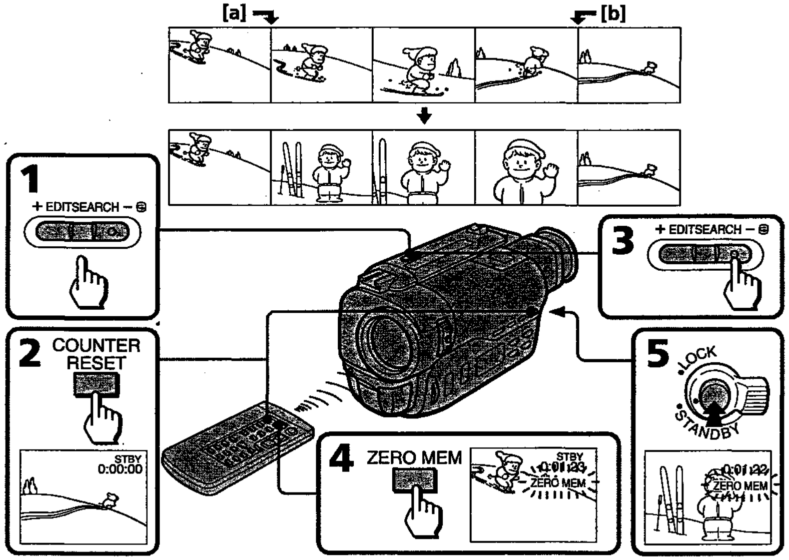
To stop recording with the date or time

Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Re-recording a picture in the middle of a recorded tape (CCD-TR910 only)

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. If the RC time code appears in the viewfinder, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or – (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion **[b]**. The camcorder enters Standby mode again.
(2) Press COUNTER RESET. The counter resets to zero.
(3) Keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion **[a]**.
(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.
(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.



To change the end point

Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.

Note on re-recording

The picture and the sound may be distorted at the end of the inserted portion when it is played back.

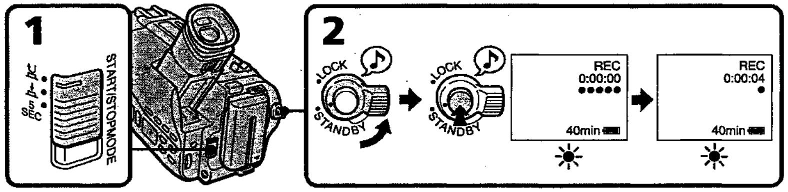
Selecting the SATRT/STOP mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) Set the START/STOP MODE switch to the desired mode.
  ⊻: Recording starts when you press START/STOP, and stops when you press it again (normal mode).
  ⊥: The camcorder records only while you press down START/STOP.
  5 SEC: When you press START/STOP, the camcorder records for 5 seconds and then stops automatically.

(2) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5 SEC, five dots appear in the viewfinder. The dots disappear at a rate of one per second. When five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.
If you select ⊥, the camcorder records as long as you hold down START/STOP.



To extend the recording time in 5 SEC mode

Press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you pressed START/STOP.

To return to normal recording

Set the START/STOP MODE switch to ⊻. If you set the switch while recording, recording continues.

Note on 5-SEC and ⊥ mode
You cannot use FADER if you select 5 SEC or ⊥.

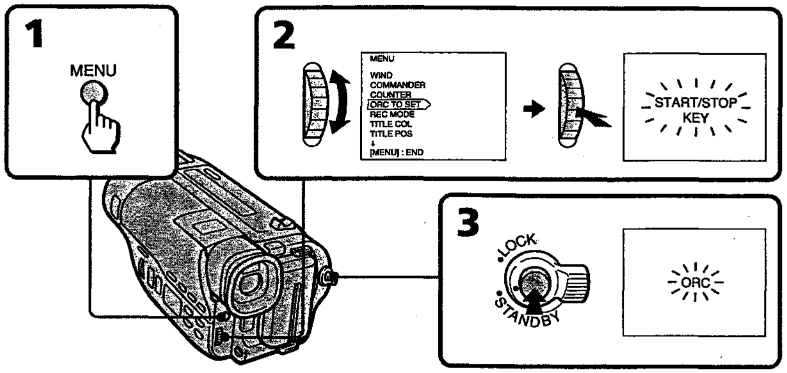
Checking the tape condition before recording (ORC)

Use this feature to check the tape condition before recording, so that you can get the best possible picture.

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the control dial to highlight ORC TO SET and press the control dial to select it. "START/STOP KEY" starts flashing.

(3) Press START/STOP.
The ORC indicator starts flashing. The camcorder takes about 5 seconds to check the condition of the tape head and the cassette. The ORC indicator disappears.



If the cassette has been ejected
Every time you eject the cassette, ORC is canceled. Set ORC again.

To check if you have performed ORC
Perform step 1 and step 2 above. If "ORC ON" is displayed, the tape condition has been checked.

When the tab on the cassette exposes a red mark
You cannot set ORC.

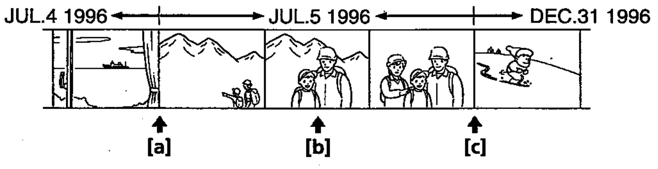
If you set ORC on the tape already recorded
A 0.1 second unrecorded part is automatically created on the tape. However, if you continue recording over the part, the unrecorded part on the tape is canceled.

Searching the boundaries of recorded date (CCD-TR910 only)

You can search for the boundary between recording dates using the Date Code automatically recorded on the tape.

There are two modes:

- Searching for the beginning of a specific date, and playing back from there **(Date Search)**
- Searching for the beginning of all days, one after another, playing back about 10 seconds of each **(Date Scan)**



Each time you press DATE SEARCH, the mode changes as follows:

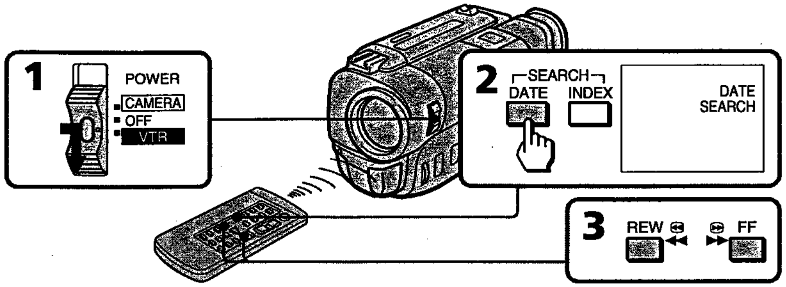
Date Search → Date Scan → nothing

To search for the beginning of a specific date

(1) Set the POWER switch to VTR. The tape transport buttons light up.
(2) Press DATE SEARCH on the Remote Commander.
(3) When the current position is **[b]**, press ◀◀ to search towards **[a]** or press ▶▶ to search towards **[c]**.

To scan the beginning of all days

(1) Set the POWER switch to VTR. The tape transport buttons light up.
(2) Press DATE SEARCH on the Remote Commander twice.
(3) Press ◀◀ or ▶▶. Date Scan starts.



To stop searching or scanning

Press one of the following tape transport buttons: ▷, □, ◀◀ or ▶▶.

To view pictures during searching or scanning

Press ▷ and then press ◀◀ or ▶▶.

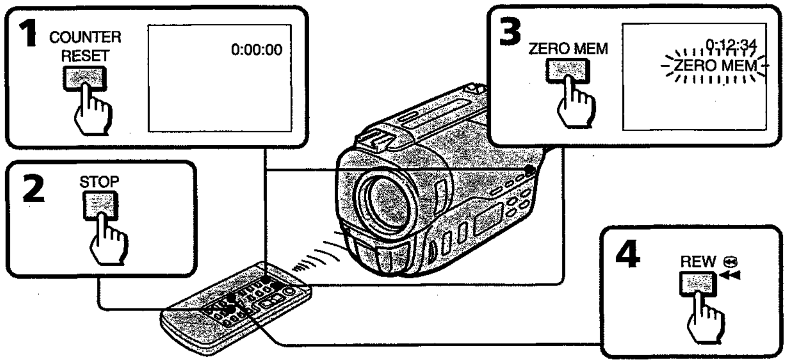
Notes on Date Search and Date Scan mode

- If a day's recording is not longer than 2 minutes, the camcorder may not accurately find its boundaries.
- Date Search and Date Scan do not function on a tape recorded by a camcorder without the Data Code function. Your camcorder has the Data Code function.

Returning to a pre-registered position (CCD-TR910 only)

Using the Remote Commander, you can easily go back to the desired point on a tape after playback. Use the tape counter. If the RC time code appears in the viewfinder, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) During playback, press COUNTER RESET at the point you later want to locate. The counter shows "0:00:00" in the viewfinder.
(2) Press ☐ when you want to stop playback.
(3) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes in the viewfinder.
(4) Press ◀◀ to rewind or press ▶▶ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero.



Notes on the tape counter
- Something must be recorded on the tape in order for the tape counter to function. Tape counter does not work on a blank tape.
- There may be a discrepancy of several seconds from the actual time.

Notes on ZERO MEM
- When you press ZERO MEM, the counter's zero point is memorized. Press ZERO MEM again before rewinding to cancel the memory.
- This function is canceled automatically once the tape is rewound or advanced to the point you pre-registered.
- ZERO MEM does not function during recording or playing back.

Locating the marking position (CCD-TR910 only)

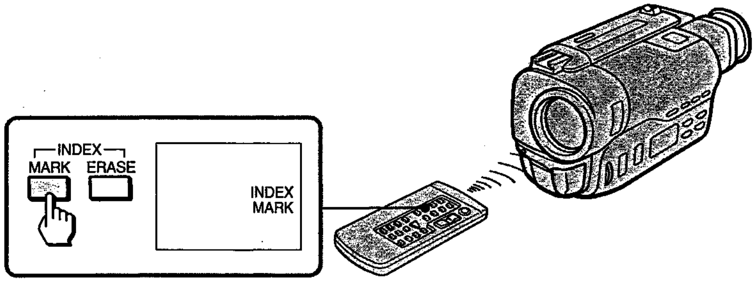
You can locate the beginning of a desired program easily by marking an index signal during recording or playback and searching for it later.

Marking an index signal

You can mark an index signal during recording or playback.

When marking at the beginning of recording or playback
Press INDEX MARK on the Remote Commander in recording standby or playback pause mode. The INDEX MARK indicator appears in the viewfinder with the MARK indicator flashing. When recording or playback starts, the MARK indicator stops flashing. This shows that the index signal is being marked. Then the INDEX MARK indicator will disappear.

When marking during recording or playback
Press INDEX MARK on the Remote Commander at the point you want to locate later.



Notes on marking
- Make sure you mark index signals at more than two-minute intervals. Otherwise, you may not be able to search for them correctly.
- If you stop recording or playback while the index signal is being marked (the INDEX MARK indicator lights in the viewfinder), the search may not be completed correctly.
- If you mark an index signal on the tape with the Data Code or RC time cord recorded, the Data Code will be erased at the point on which the index signal is marked. When playing back this tape, the camcorder keeps displaying the Data Code immediately before the erased one. If the Data Code does not exist for more than 30 seconds, the Data Code displays bars (– –).
- A black band appears when you mark index signal during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.
- An index signal is marked automatically when you start recording with the POWER switch to VTR. When you start recording from recording pause mode, however, an index signal is not marked.
- You cannot mark an index signal on a tape with the red mark on the cassette exposed.
- You cannot mark an index signal when you are using 5 SEC, ⩲ or fading out when the POWER switch is set to CAMERA.

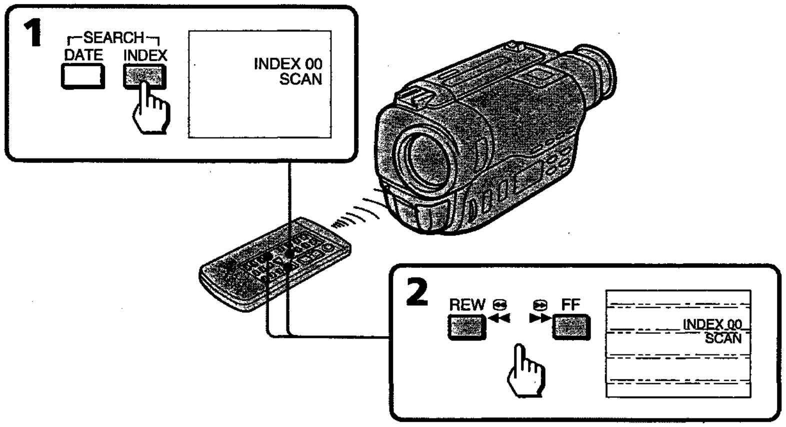
Locating the marking position (CCD-TR910 only)

Scanning the beginning of each marking position — index scan

Use the Remote Commander. To view the picture on a TV, press DISPLAY.

(1) Press INDEX on the Remote Commander during normal playback or in stop mode.

(2) Press ◀◀ or ▶▶. The tape rewinds or advances rapidly and plays back for approximately 10 seconds from the point on which the index signal was marked. If you want to continue playback, press ▷. When you do not press any button, the tape is automatically scanned to the next program.


1
SEARCH
DATE
INDEX
INDEX 00
SCAN
2
REW
FF
INDEX 00
SCAN

To cancel index scan mode

Press ▷. Normal playback resumes.

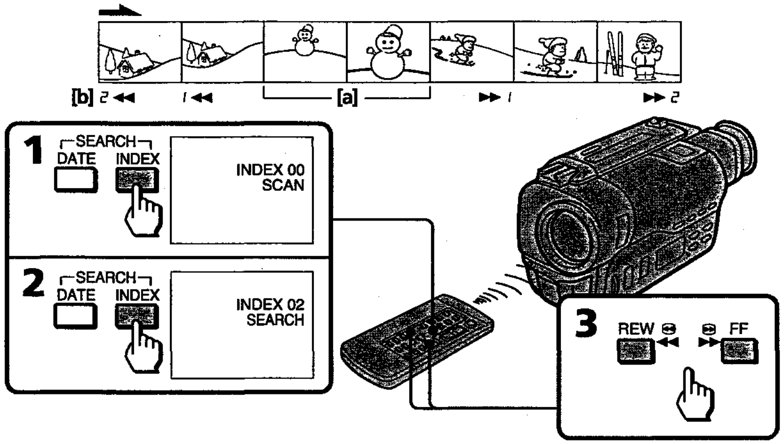
Locating the desired marking position — index search

(1) Press INDEX on the Remote Commander during stop or playback mode.

(2) Press INDEX repeatedly until the index number of the desired program is displayed in the viewfinder.

(3) Press ◀◀ or ▶▶. Playback starts from the beginning of the desired program.

[a] the current position
[b] the INDEX number


[b] 2 ◀◀
1 ◀◀
[a]
▶▶ 1
▶▶ 2
1
SEARCH
DATE
INDEX
INDEX 00
SCAN
2
SEARCH
DATE
INDEX
INDEX 02
SEARCH
3
REW
FF

To stop index search mode

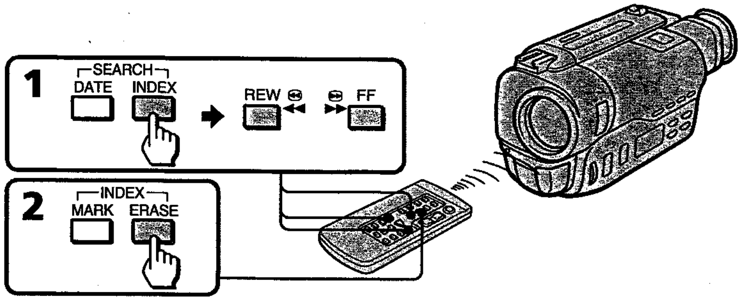
Press ▷. Normal playback resumes.

Note on the index number

The index number (1, 2, etc.) indicates the distance from the point you are now viewing **[a]**, regardless of the direction.

Erasing an index signal

(1) Locate the index signal to be erased using the index scan or index search function.
(2) Press INDEX ERASE on the Remote Commander within 2 to 10 seconds while the desired program plays back. After the index signal is erased, the camcorder returns to index scan or index search mode, whichever was used in step 1.



Notes on erasing

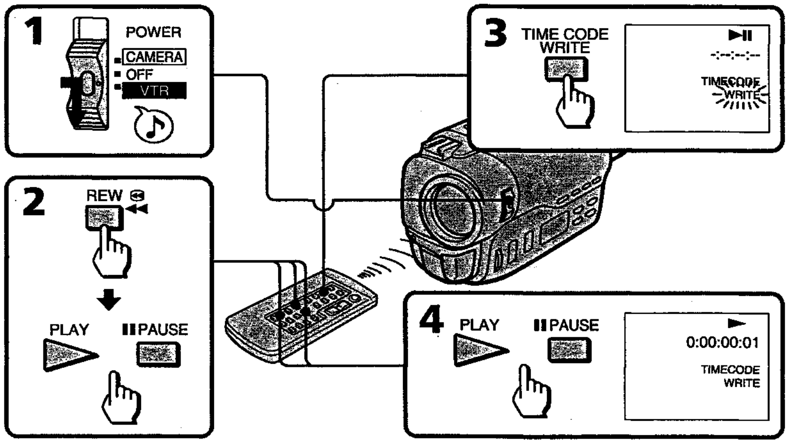
- Press INDEX ERASE more than 2 seconds after the playback of the desired program begins.
- You cannot erase the index signal on a tape with the red mark on the cassette exposed.
- While the index signal is being erased, the sound may not be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.
- The camcorder can detect index signals marked with VCRs, but may not erase them. VCRs with an index function can detect index signals marked with this camcorder but may not erase them.
- An index signal may be erased when making PCM after recording on another VCR in the portion where the index signal is marked.

Note on Data Code

When an index signal is erased, Data Code on the same portion of the tape is also erased.

Writing the RC Time code on a recorded tape (CCD-TR910 only)

You can write the RC time code on a recorded tape. Use the Remote Commander.
(1) While pressing the small green button on the POWER switch, slide it to VTR.
(2) Rewind the tape to the beginning and set the camcorder to playback pause mode.
(3) Press TIME CODE WRITE on the Remote Commander. The TIME CODE WRITE indicator appears in the viewfinder with the WRITE indicator flashing.
(4) Press ▷ or ❚❚ to start playback. The WRITE indicator stops flashing and the RC time code writing starts from 0:00:00:00.



To stop writing the RC time code

Press ☐ (or any tape transport button).

To write the RC time code from the end of the RC time code recorded portion

Rewind the tape to the portion on which the RC time code has been written and set the camcorder to playback pause mode. Then follow steps 3 and 4 above. The RC time code is written continuously.

Notes on writing the RC time code

- The RC time code writing stops when:
  - you press TIME CODE WRITE again before starting playback.
  - you press INDEX or DATE before starting playback.
  - you change from playback to another mode.
- When you are writing the RC time code from the middle of a tape without the time code written, writing starts several frames before the current picture.
- If you write the RC time code on a recorded tape, the Data Code is erased.
- You can mark the RC time code on a tape recorded both in LP mode and SP mode, the RC time code written in LP mode, however, may not be read correctly.
- You cannot mark the RC time code on an PAL-recorded tape.
- You cannot write the RC time code on a tape with the red mark on the cassette exposed.

Writing the RC Time code on a recorded tape (CCD-TR910 only)

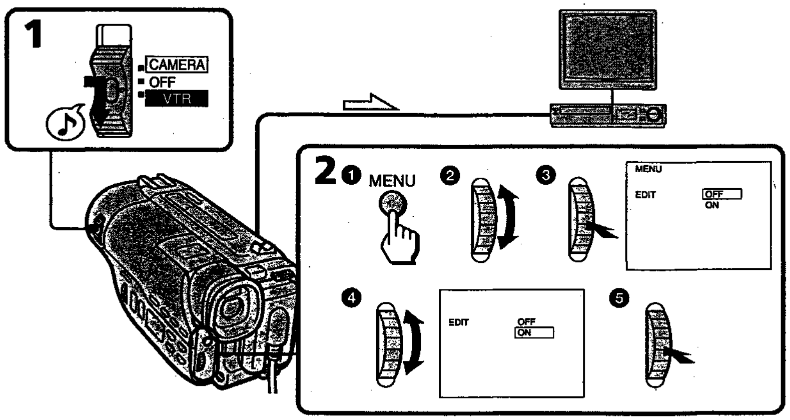
Note on --:--:--:-- indicator
The --:--:--:-- indicator appears during playback if:
- nothing is recorded.
- the RC time code is unreadable because of the damage of the tape or because of the noise.
- you recorded using another VCR without RC time code function.

Editing onto another tape

You can create your own video program by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHS-C VHSC, S-VHS-C S-VHSC, B Betamax or ED Beta ED Betamax VCR that has video/audio inputs.

Before editing

Connect the camcorder to the VCR as described in "Connections for playback" on page 16.
Set the input selector on the VCR to LINE, if available.
(1) While pressing the small green button on the POWER switch, slide it to VTR.
(2) Set EDIT to ON in the menu system.



: Signal flow

Starting editing

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert your recorded tape into the camcorder.
(2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing, then press II to set the camcorder in playback pause mode.
(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.
(4) Press II on the camcorder and VCR simultaneously to start editing.

To edit more scenes
Repeat steps 2 to 4.

To stop editing
Press □ on both the camcorder and the VCR.

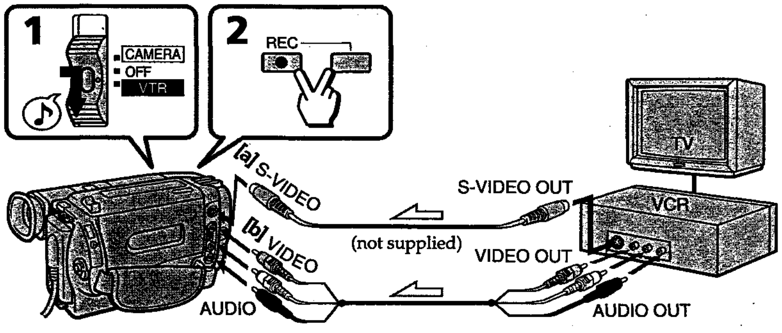
Note on the DISPLAY function
If you have displayed the viewfinder screen indicators on the TV, erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Recording from a VCR or TV

You can record a tape from another VCR or a TV program from a TV that has audio/video outputs. Connect the camcorder to the VCR or TV.

(1) While pressing the small green button on the POWER switch, slide it to VTR.
(2) Press REC ● and the button on the right together at the point where you want to start recording.

In recording and recording pause mode, S VIDEO (CCD-TR910 only) and VIDEO/AUDIO jacks automatically work as input jacks.



⇦ : Signal flow

If your VCR or TV is a monaural type, connect only the white plug for audio on both the camcorder and the VCR or TV.
If you are going to connect the camcorder using the S video cable (not supplied) **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]** (CCD-TR910 only).

To check the picture from a VCR or TV before recording

Press **II** after pressing ●. You can check the picture in the viewfinder.

To stop recording

Press □.

Replacing recording on a tape (insert editing) — CCD-TR910 only

You can insert a new scene from a VCR onto your originally recorded tape by specifying starting and ending points.
Connections are the same as in "Recording from a VCR or TV" on the previous page.

(1) In the menu system, make sure that the item of COUNTER is set to NORMAL. While pressing the small green button on the POWER switch, slide it to VTR.
(2) On the VCR, locate the start point to be inserted and set it to playback pause mode.
(3) On the camcorder, locate the point where the insert should end by pressing ◀◀ or ▶▶, then press **II** to set it to playback pause mode.
(4) Press COUNTER RESET to set the counter to zero.
(5) On the camcorder, locate the point where the insert should begin by pressing ◀◀, then press ● REC and **II** to set it to recording pause mode.
(6) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes and the end point of the insert is stored in memory.
(7) Press **II** on the camcorder and the VCR simultaneously to start insert editing. The insert editing stops automatically near the counter's zero point.

To change the end point

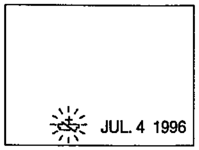
Press ZERO MEM on the Remote Commander so that the ZERO MEM indicator disappears and begin from step 3.

Note on the inserted picture
The picture may be distorted at the end of the inserted portion when it is played back.

Additional Information

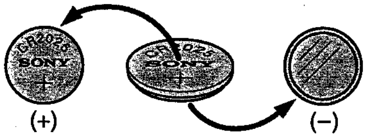
Changing the lithium battery in the camcorder

Your camcorder is supplied with a lithium battery installed. When the battery becomes weak or dead, the ☼ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)



Note on lithium battery

The lithium battery has positive (+) side and negative (–) side as illustrated. **Be sure to insert the lithium battery with the positive side facing out.**

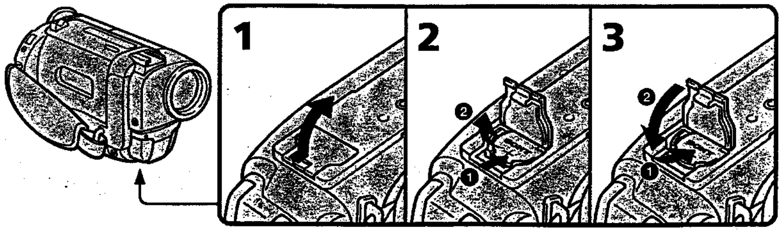


WARNING
The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution
Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

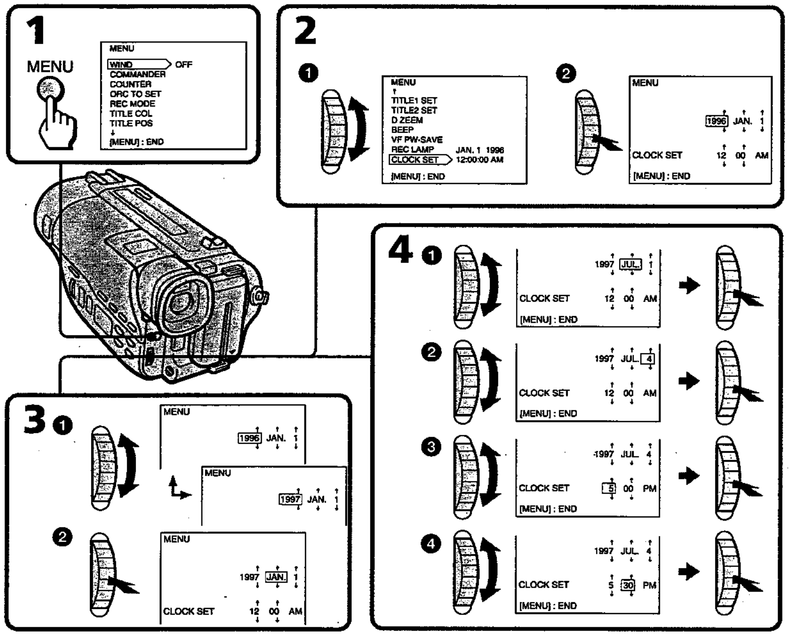
Changing the lithium battery

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu system retained by the lithium battery.
(1) Open the lid of the lithium battery compartment.
(2) Push the battery down once and pull it out from the holder.
(3) Install the lithium battery with the positive (+) side facing out. Close the lid.



Resetting the date and time

You can set the date and time in the menu system.
(1) Press MENU to display the menu in the viewfinder.
(2) Turn the control dial to highlight CLOCK SET, and press the control dial to select it.
(3) Turn the control dial to adjust the year, and then press the control dial.
(4) Set the month, day, hour, and minutes by turning the control dial and then pressing the control dial.
(5) Press MENU to erase the menu display.


1
MENU
MENU
WIND OFF
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
[MENU] : END
2
❶
MENU
TITLE1 SET
TITLE2 SET
D ZEEM
BEEP
VF PW-SAVE
REC LAMP
CLOCK SET JAN. 1 1996 12:00:00 AM
[MENU] : END
❷
MENU
1996 JAN. 1
CLOCK SET 12 00 AM
[MENU] : END
3 ❶
MENU
1996 JAN. 1
MENU
1997 JAN. 1
❷
MENU
1997 JAN. 1
CLOCK SET 12 00 AM
4 ❶
1997 JUL. 1
CLOCK SET 12 00 AM
[MENU] : END
❷
1997 JUL. 4
CLOCK SET 12 00 AM
[MENU] : END
❸
1997 JUL. 4
CLOCK SET 5 00 PM
[MENU] : END
❹
1997 JUL. 4
CLOCK SET 5 30 PM
[MENU] : END

To correct the date and time setting

Repeat the above procedure.

To check the preset date and time

Press DATE to display the date indicator in the viewfinder.
Press TIME to display the time indicator.
When you press the same button again, the indicator goes off.

The year changes as follows:

1996 ←→ 1997 ←— ···· —→ 2029

Note on the time indicator
The internal clock of this camcorder operates on a 12-hour cycle.
- 12:00 AM stands for midnight.
- 12:00 PM stands for noon.

Usable cassettes and playback modes

Selecting cassette types (CCD-TR910 only)

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures.
You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using the standard 8 mm video recorder/player, you should use standard 8 mm cassettes.
When you use a Hi8 video cassette, you cannot record in LP mode. The **Hi8** indicator flashes in the viewfinder when you load a Hi8 video cassette with LP selected. If you start recording with the **Hi8** indicator flashing. The **Hi8** indicator disappears and you can use the tape in standard 8 mm system. If you select SP, you can record the tape in Hi8 format.

To play back in	Record using cassette type
Hi8	**Hi8**
Standard 8	8

When you play back

The playback mode (SP/LP or Hi8/standard 8 mm) is selected automatically according to the format in which the tape has been recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

Note on AFM HiFi stereo

When you play back a tape, the sound will be in monaural if:
- You record the tape using this camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on this camcorder.

Recording mode

When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode SP/LP.

Foreign 8 mm video

Because the TV color systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to the list of "Using Your Camcorder Abroad" to check the TV color system of foreign countries.

Tips for using the battery pack

This section shows you how you can get the most out of your battery pack.

Preparing the battery pack

Always carry additional batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment

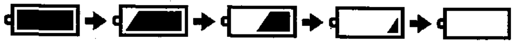
Battery efficiency is decreased, and the battery will be used up more quickly, if you are recording in a cold environment.

To save battery power

Turn STANDBY down when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

When to replace the battery pack

While you are using your camcorder, the remaining battery indicator in the viewfinder decreases gradually as battery power is used up.
The minute indicator appears with the remaining battery indicator while recording.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder.
When the ▭ indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, slide the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced.
The mark may start flashing even when the battery has enough power to last about 5 or 10 minutes.

Notes on the rechargeable battery pack

Caution

Never leave the battery pack in temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack.
This is not cause for concern and is normal.

Tips for using the battery pack

About ⓘ InfoLITHIUM batteries

The InfoLITHIUM is a lithium ion battery pack which can exchange data with compatible video equipment about its battery consumption. Sony recommends that you use the InfoLITHIUM battery pack with video equipment having the ⓘ InfoLITHIUM mark.

When you use this battery pack with video equipment having the ⓘ InfoLITHIUM mark, the video equipment will indicate the remaining battery time in minutes*. However, if you use it with video equipment not having this mark, the remaining battery capacity will not be indicated in minutes.

* The indication may not be accurate depending on the condition and environment which the equipment is used under. If the indication is not accurate, use the battery pack completely and then charge it fully. The indication will become accurate. However, the indication may not become accurate if you use or leave the battery pack in a warm place for a long time, or after you have used the battery pack many times.

Battery pack care

- **Remove the battery pack from the camcorder after using it,** and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

Notes on the Battery Case

- **Use only with alkaline batteries. You cannot use the battery case with manganese batteries or rechargeable batteries.**
- Battery life is remarkably shorter in a cold environment (lower than 50°F/10°C).
- Keep the metal part clean. If it gets dirty, wipe it with a soft cloth.
- Do not disassemble or convert the battery case.
- Do not expose the battery case to any mechanical shock.
- During recording, the battery case heats up. This is not cause for concern.
- Prevent the electrode in the battery case from coming in contact with a metal object.
- If you will not use the battery case for a long time, detach the battery case from the camcorder and remove the batteries from the battery case.

Note on Alkaline Batteries

To avoid possible damage from battery leakage or corrosion, observe the following.

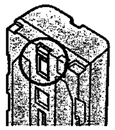
- Be sure to insert the batteries in the correct direction.
- Alkaline batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

If battery leakage occurred

- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

The switch on the battery pack

This switch is provided so that you can mark the charged battery pack. Set the switch to the "green mark" position when charging is completed. (When removed from the charging adaptor, the switch exposes the green mark. When removed from your camcorder, no mark is indicated.)



The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 50°F to 86°F (from 10°C to 30°C). Lower temperatures require a longer charging time.

Notes on charging

A brand-new battery pack

A brand-new battery pack is not charged. Before using the battery pack, charge the battery. When the CHARGE lamp goes out, normal charge is completed. For full charge, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour.

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Notes on the terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Do not put any foreign objects such as dust or sand in the ⊕ and ⊖ terminals.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

Maintenance information and precautions

Moisture condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the ▣ indicator flashes. If this happens, none of the functions except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour.

On the lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

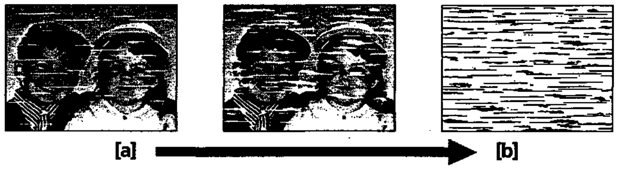
How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.
(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator and "▣ CLEANING CASSETTE" message appear one after another in the viewfinder or playback pictures are "noisy" or hardly visible, the video heads may be dirty.



[a] Slightly dirty
[b] Very dirty

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy," repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On handling tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is in or out.

Maintenance information and precautions

Camcorder care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

AC power adaptor

Charging

- Use only a lithium ion type battery pack.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from the wall outlet when not in use for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord forcibly, or put a heavy object on it. this will damage the cord and may cause a fire or electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

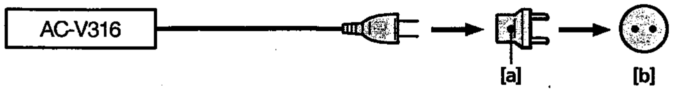
Using your camcorder abroad

Each country has its own electric and TV color systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Use a commercially available adaptor **[a]**, if necessary, depending on the design of the wall outlet **[b]**.



Difference in color systems

This camcorder is an NTSC system-based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system-based TV.
Check the following list.

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

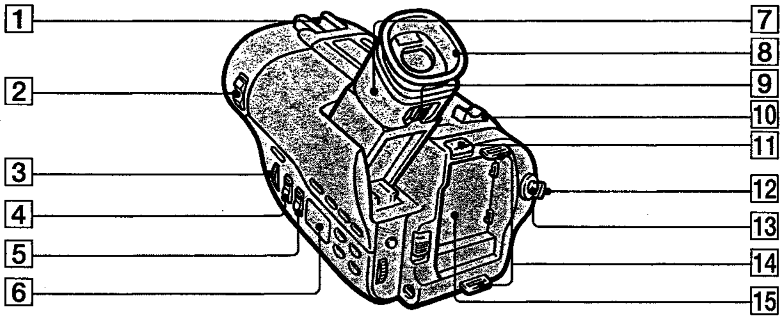
PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Identifying the parts



1 **Intelligent accessory shoe (for CCD-TR910)**
Accessory shoe (for CCD-TR710)
The intelligent accessory shoe supplies power to optional accessories such as a video light.

2 **POWER switch** (p.10)

3 **FAR/NEAR dial** (p.30)

4 **FOCUS switch** (p.30)

5 **STEADY SHOT switch** (p.35)

6 **Display window** (p.78)

7 **Viewfinder** (p.11, 14)

8 **Eyecup** (p.14)

9 **Viewfinder lens adjustment lever** (p.11)

10 **Power zoom lever** (p.13)

11 **BATT (battery) PUSH button** (p.7)

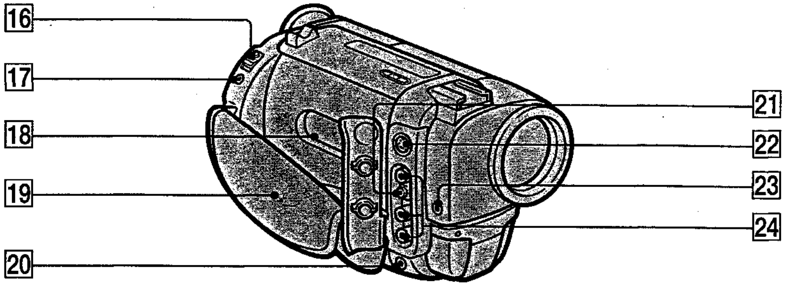
12 **STANDBY switch** (p.10)

13 **START/STOP button** (p.10)

14 **Hooks for shoulder strap** (p.77)

15 **Battery mounting surface**

Identifying the Parts



16 **EJECT switch** (p.9)

17 **REMOTE LANC Ⓛ control jack**
Ⓛ stands for Local Application Control Bus System. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

18 **Cassette compartment** (p.9)

19 **Grip strap** (p.14)

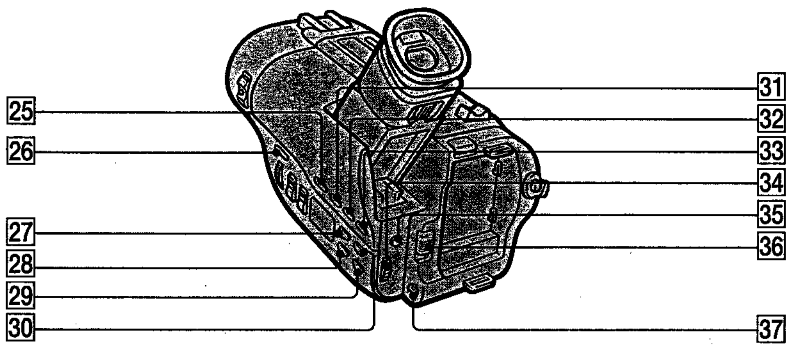
20 **∩ (headphones) jack** (p.17)

21 **RFU DC OUT (RFU adaptor DC output) jack** (p.16)

22 **S VIDEO jack (CCD-TR910 only)** (p.16)

23 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.

24 **VIDEO/AUDIO jacks** (p.16)
The jack changes automatically, allowing it to function as both an input jack and an output jack.



25 **BACKLIGHT button** (p.33)

26 **FADER button** (p.25)

27 **TITLE button** (p.36)

28 **PICTURE EFFECT button** (p.27)

29 **PROGRAM AE button** (p.31)

30 **EXPOSURE button** (p.34)

31 **DATE button** (p.20, 40)

32 **TIME button** (p.20, 40)

33 **COUNTER RESET button** (p.12, 41)

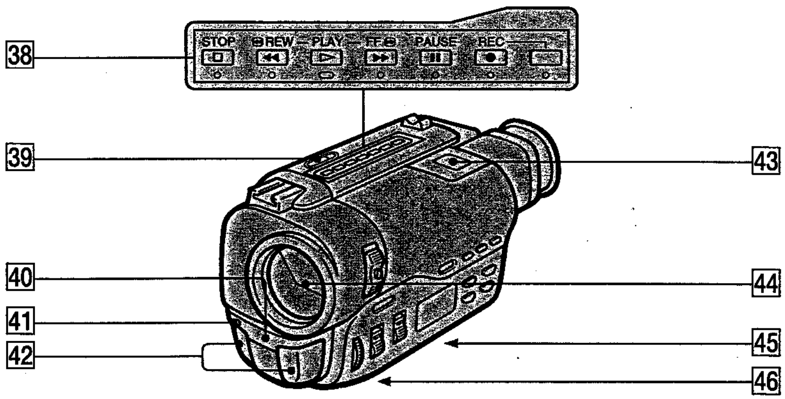
34 **CONTROL dial** (p.23)

35 **MENU button** (p.23)

36 **START/STOP MODE switch** (p.42)

37 **WIDE button** (p.26)

Identifying the parts



38 **Tape transport buttons** (p.17)
□ STOP (stop)
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)
● REC (recording)

39 **EDITSEARCH button** (p.15)

40 **Remote sensor** (p.76)
Aim the Remote Commander here for remote control.

41 **Camera recording/battery lamp** (p.10)

42 **Microphone**

43 **Lighting aperture** (p.14)

44 **Lens cover** (p.10)

45 **Tripod receptacle** (p.14)

46 **Lithium battery compartment** (p.56)

To watch the demonstration

You can watch a brief demonstration of pictures with special effects. If the demonstration appears when you turn on the camcorder for the first time, exit the Demo mode to use your camcorder.

To enter Demo mode
(1) Eject the cassette and set the POWER switch to OFF.
(2) Turn STANDBY up.
(3) While holding down ▷, set the POWER switch to CAMERA. The demonstration starts. The demonstration stops when you insert the cassette.

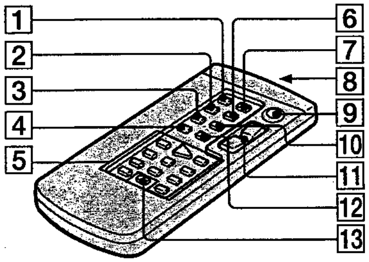
Note that once you enter Demo mode, this mode is retained as long as the lithium battery is in place. Therefore, demonstration starts automatically 10 minutes later every time you set the POWER switch to CAMERA, and after you eject the cassette.

To exit Demo mode
(1) Set the POWER switch to VTR.
(2) Turn STANDBY up.
(3) While holding down □, set the POWER switch to CAMERA. DEMO OFF appears in the viewfinder.

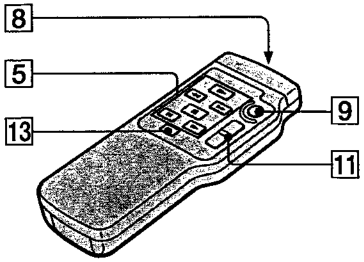
Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.

RMT-715 (for CCD-TR910)



RMT-708 (for CCD-TR710)



1 **COUNTER RESET button (CCD-TR910 only)** (p.12, 41, 46)

2 **TIME CODE WRITE button (CCD-TR910 only)** (p.51)

3 **INDEX MARK** (p.47)

4 **DATE SEARCH button (CCD-TR910 only)** (p.44)

5 **Tape transport buttons** (p.17)

6 **DATA CODE button (CCD-TR910 only)** (p.19)

7 **ZERO MEM button (CCD-TR910 only)** (p.41, 46)

8 **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

9 **START/STOP button** (p.10)

10 **INDEX ERASE (CCD-TR910 only)** (p.50)

11 **Power zoom button** (p.13)

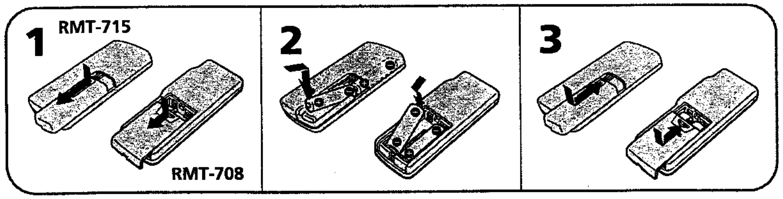
12 **INDEX SEARCH button (CCD-TR910 only)** (p.49)

13 **DISPLAY button** (p.18)

To prepare the Remote Commander

To use the Remote Commander, you must insert two size AA (R6) batteries. Use the supplied size AA (R6) batteries.

(1) Remove the battery cover from the Remote Commander.
(2) Insert both of the size AA (R6) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.

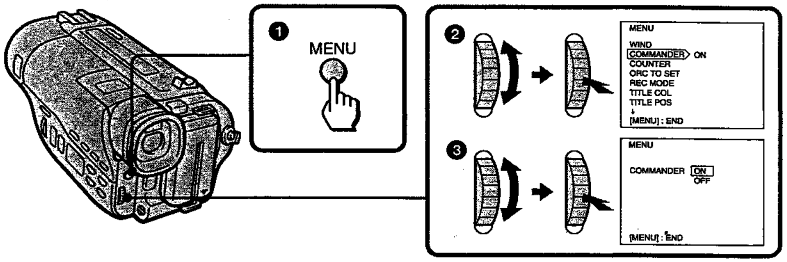


Note on battery life
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

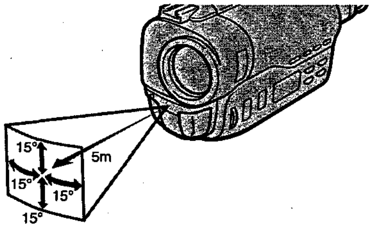
To avoid damage from possible battery leakage
Remove the batteries when you will not use the Remote Commander for a long time.

To use the Remote Commander

Make sure that the COMMANDER is set to ON in the menu system on the camcorder.



Remote control direction

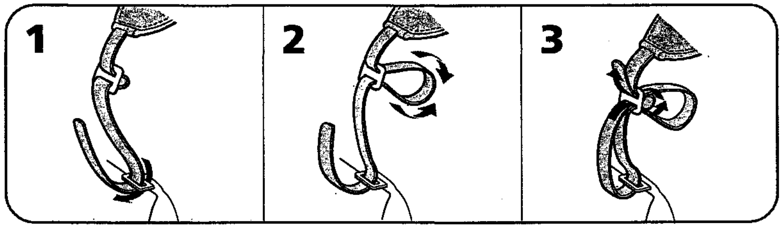


Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works in commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Attaching the shoulder strap

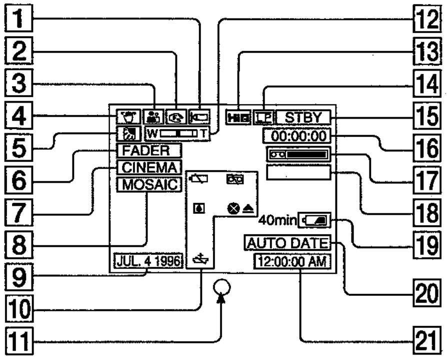
Attach the supplied shoulder strap to the hooks for the shoulder strap.



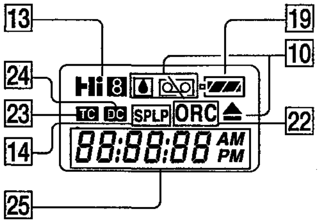
Identifying the parts

Operation indicators

Viewfinder


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
W T
FADER
CINEMA
MOSAIC
STBY
00:00:00
40min
AUTO DATE
JUL. 4 1996
12:00:00 AM

Display window


13
24
23
14
25
19
10
22
Hi8
TC
DC
SPLP
ORC
88:88:88
AM
PM

1 **WIND indicator** (p.23)

2 **Manual focusing** (p.30)

3 **PROGRAM AE indicator** (p.31)

4 **Steady Shot indicator** (p.35)

5 **Backlight indicator** (p.33)

6 **FADER indicator** (p.25)

7 **Wide mode indicator** (p.26)

8 **Picture effect indicator** (p.27)

9 **Data Code indicator (CCD-TR910 only)** (p.19)

10 **Warning indicators** (p.79)

11 **Recording lamp/Battery lamp** (p.10)

12 **Exposure indicator/Zoom indicator** (p.13, 34)

13 **Playing back or recording in Hi8 format (CCD-TR910 only)** (p.58)

14 **Lights up when recording or playing back a tape recorded in LP/SP mode.** (p.58)

15 **Tape transport mode** (p.17)

16 **Tape counter** (p.23)
RC time code indicator (CCD-TR910 only) (p.51)

17 **Remaining tape indicator**

▬ → ▬ → ▭ → 5min → 0min

18 **Date search/Date scan indicator (CCD-TR910 only)** (p.44)
TIME CODE WRITE indicator (CCD-TR910 only) (p.51)
ZERO MEM indicator (CCD-TR910 only) (p.41, 46)
Index search/Index scan/Index mark/ Index erase indicator (CCD-TR910 only) (p.47, 48, 49, 50)

19 **Remaining battery indicator** (p.59)

▬ → ▬ → ▬ → ▭ → ▭

20 **AUTO DATE indicator (CCD-TR710 only)**

21 **Date or Time indicator** (p.57)

22 **ORC indicator** (p.43)

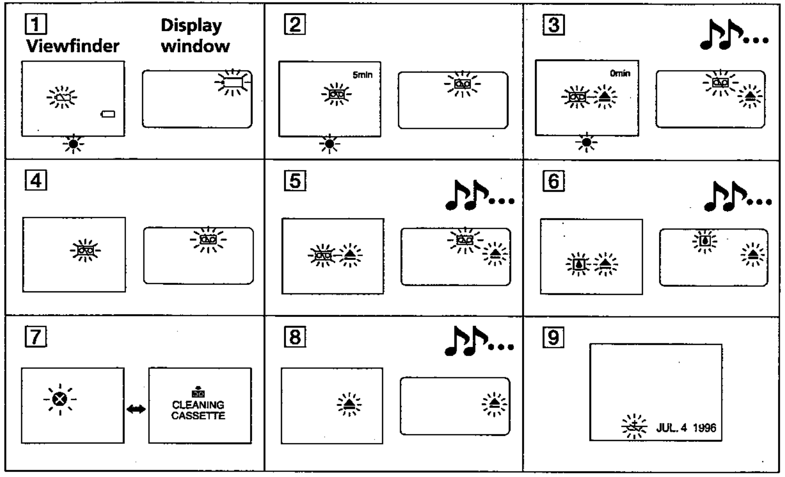
23 **Time code indicator (CCD-TR910 only)**

24 **Data code indicator (CCD-TR910 only)** (p.20)

25 **Date or Time indicator** (p.57)
Tape counter (p.23)
RC time code indicator (CCD-TR910 only) (p.51)

Warning indicators

If indicators flash in the viewfinder or in the display window, check the following:
♪: you can hear the beep sound when the BEEP is set to ON.



1 **The battery is weak or dead.**
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 **The tape is near the end.**
The flashing is slow.

3 **The tape has run out.**
The flashing becomes rapid.

4 **No tape has been inserted.**

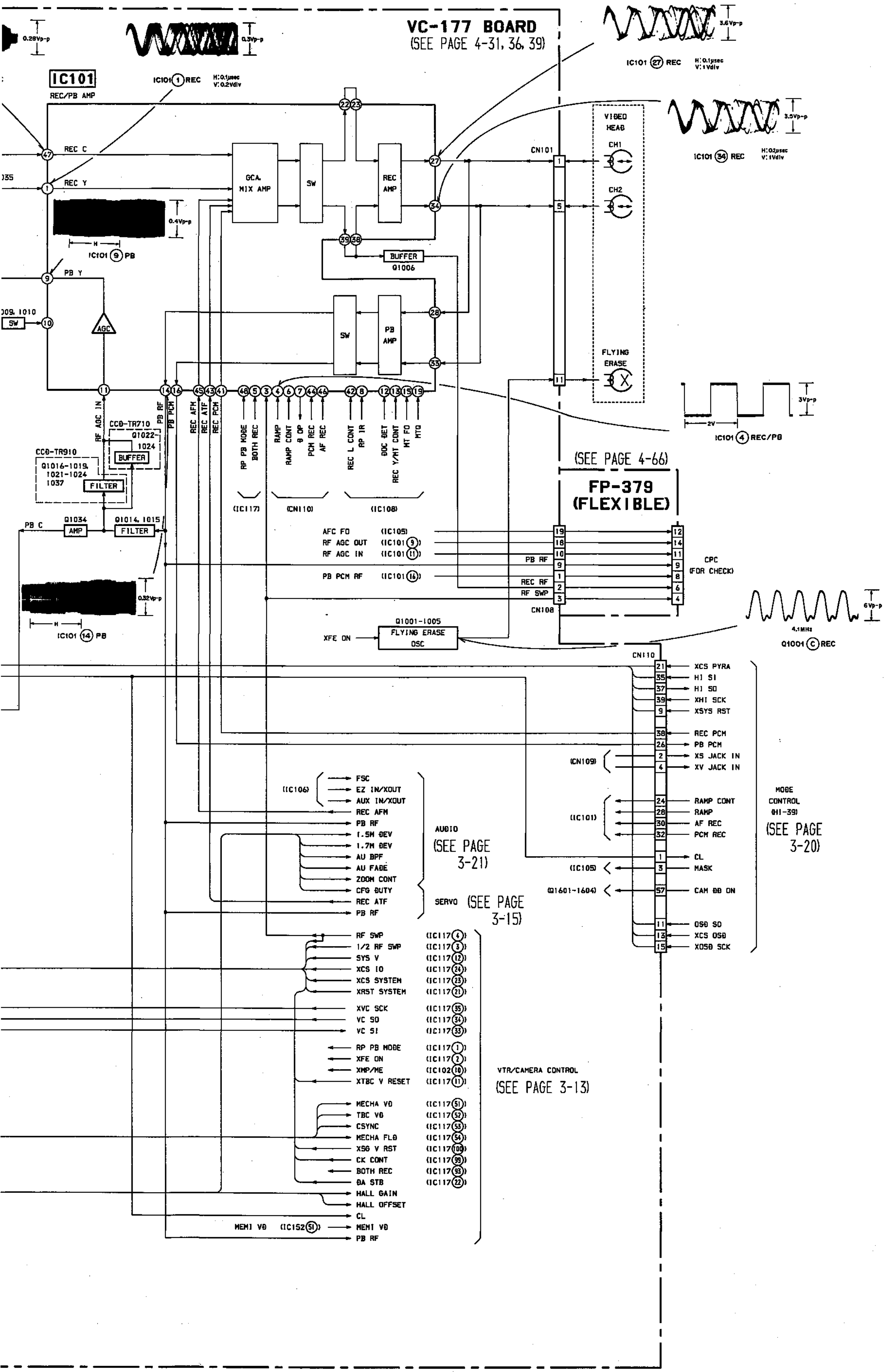
5 **The tab on the tape is out (red).**

6 **Moisture condensation has occurred.**
(p.62)

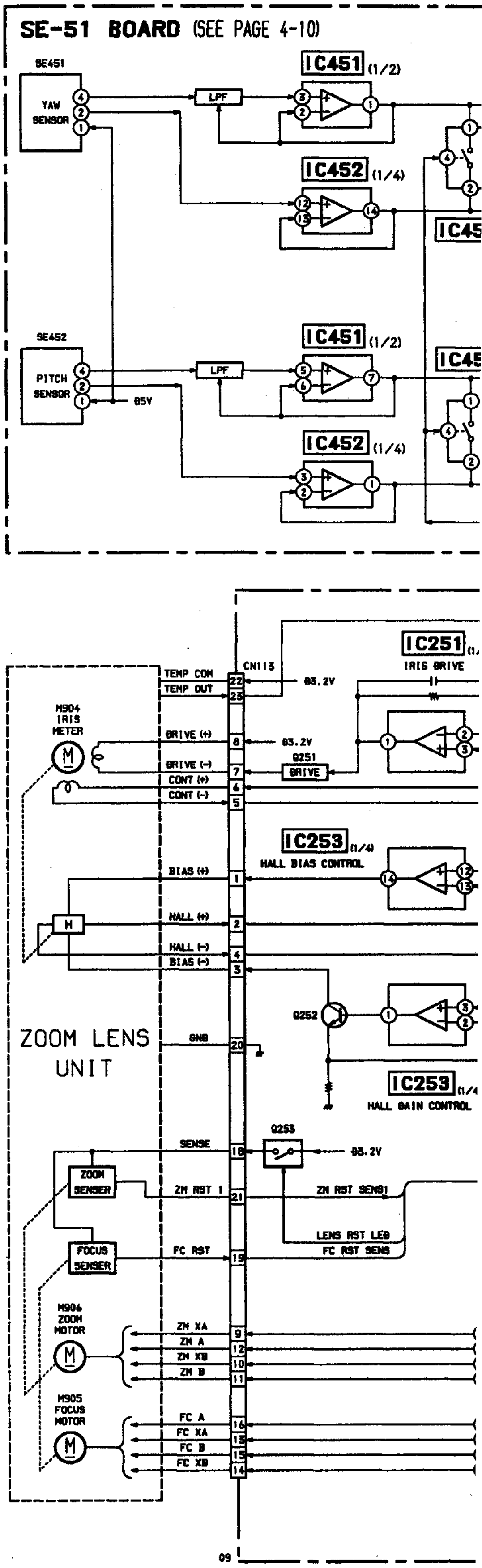
7 **The video heads may be contaminated.**
(p.63)
This indicator appears only on the viewfinder.

8 **Some other trouble has occurred.**
Disconnect the power source and contact your Sony dealer or local authorized facility.

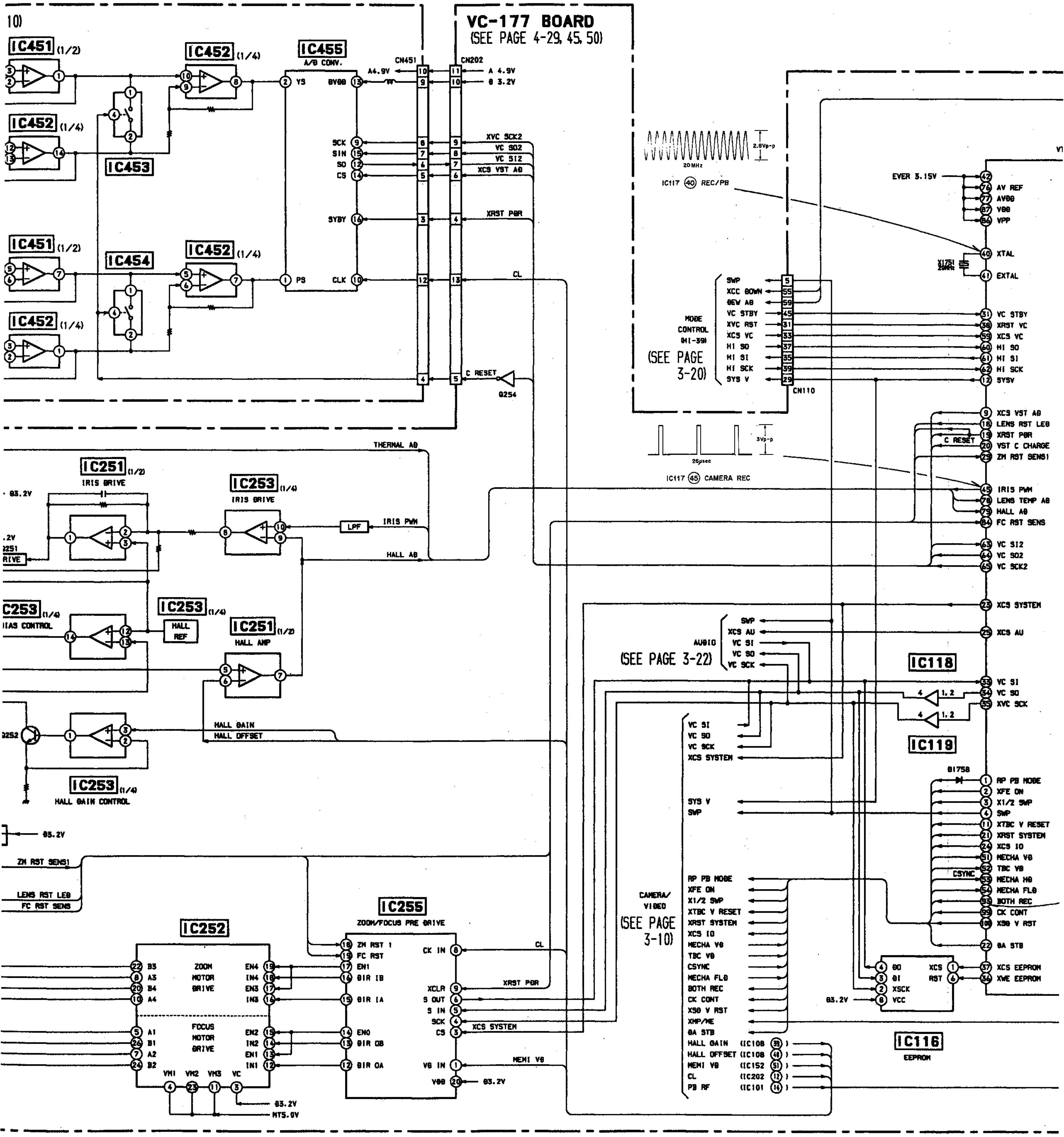
9 **The lithium battery is weak or is not installed.** (p.56)

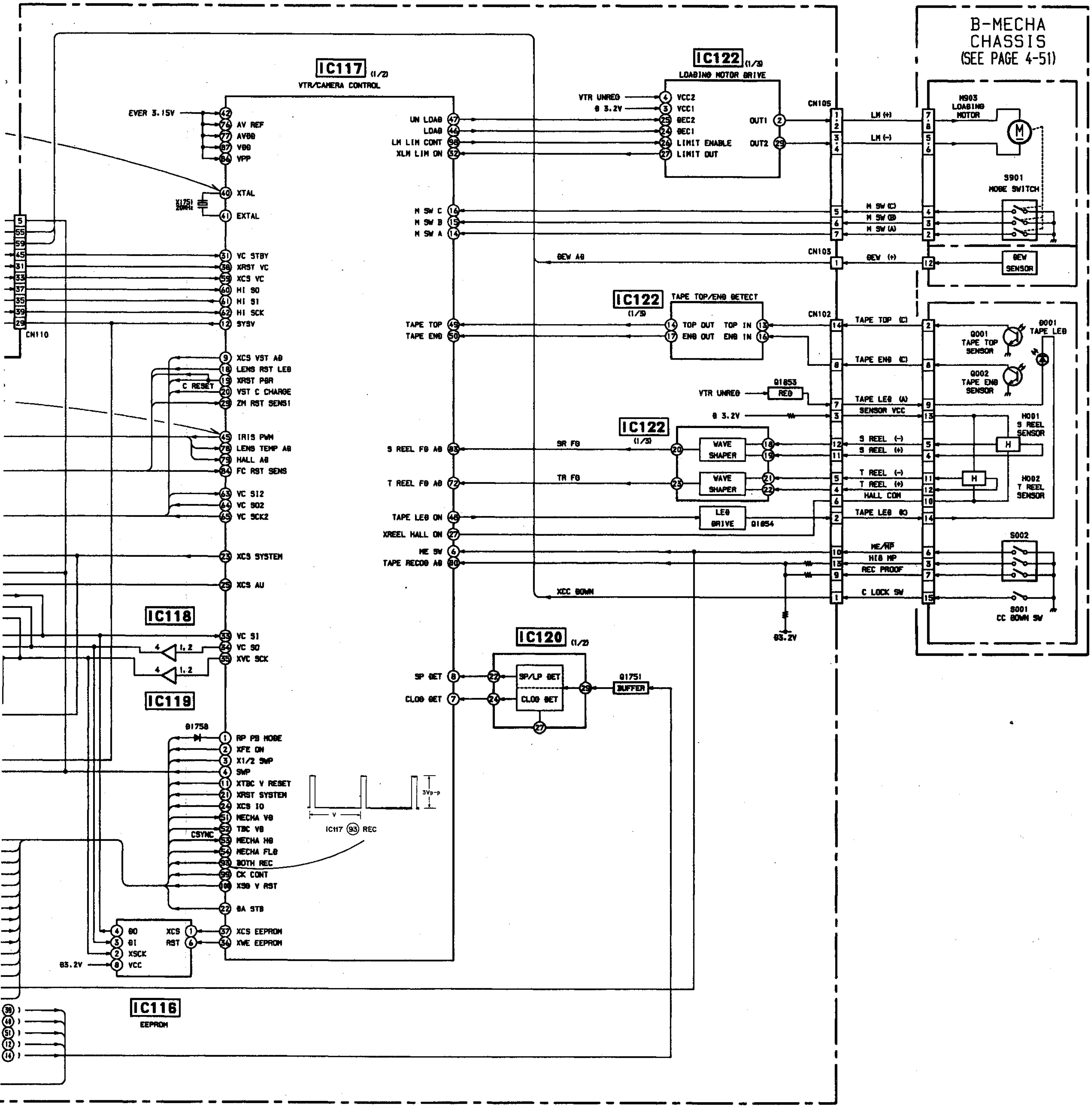

VC-177 BOARD
(SEE PAGE 4-31, 36, 39)
IC101
REC/PB AMP
0.28Vp-p
0.3Vp-p
IC101 ① REC H:0.1μsec V:0.2Vdiv
REC C
REC Y
GCA MIX AMP
SW
REC AMP
0.4Vp-p
IC101 ⑨ PB
PB Y
AGC
SW
BUFFER
Q1006
PB AMP
CN101
VIDEO HEAD
CH1
CH2
FLYING ERASE
3.6Vp-p
IC101 ㉗ REC H:0.1μsec V:1Vdiv
3.5Vp-p
IC101 ㉞ REC H:0.2μsec V:1Vdiv
3Vp-p
2V
IC101 ④ REC/PB
RF AGC IN
PB RF
PB PCM
REC AFM
REC ATF
REC PCM
RP PB MODE
BOTH REC
RAMP
RAMP CONT
θ OP
PCM REC
AF REC
REC L CONT
RP IR
DOC DET
REC Y/HT CONT
MT FO
MTG
(IC117)
(CN110)
(IC108)
CCD-TR710
Q1022-1024
BUFFER
CCD-TR910
Q1016-1019, 1021-1024, 1037
FILTER
PB C
Q1034
AMP
Q1014, 1015
FILTER
0.32Vp-p
IC101 ⑭ PB
(SEE PAGE 4-66)
FP-379 (FLEXIBLE)
AFC FO (IC105)
RF AGC OUT (IC101 ⑨)
RF AGC IN (IC101 ⑪)
PB RF
PB PCM RF (IC101 ⑯)
REC RF
RF SWP
CN108
CPC (FOR CHECK)
Q1001-1005
FLYING ERASE OSC
XFE ON
6Vp-p
4.1MHz
Q1001 Ⓒ REC
CN110
XCS PYRA
HI SI
HI SO
XHI SCK
XSYS RST
REC PCM
PB PCM
(CN109)
XS JACK IN
XV JACK IN
(IC101)
RAMP CONT
RAMP
AF REC
PCM REC
CL
(IC105)
MASK
(Q1601-1604)
CAM DD ON
OSD SO
XCS OSD
XOSD SCK
MODE CONTROL (H1-39)
(SEE PAGE 3-20)
(IC106)
FSC
EZ IN/XOUT
AUX IN/XOUT
REC AFM
PB RF
1.5M DEV
1.7M DEV
AU BPF
AU FADE
ZOOM CONT
CFG DUTY
REC ATF
PB RF
AUDIO (SEE PAGE 3-21)
SERVO (SEE PAGE 3-15)
RF SWP (IC117 ④)
1/2 RF SWP (IC117 ③)
SYS V (IC117 ⑫)
XCS IO (IC117 ㉔)
XCS SYSTEM (IC117 ㉓)
XRST SYSTEM (IC117 ㉑)
XVC SCK (IC117 ㉟)
VC SO (IC117 ㉞)
VC SI (IC117 ㉝)
RP PB MODE (IC117 ①)
XFE ON (IC117 ②)
XMP/ME (IC102 ⑩)
XTBC V RESET (IC117 ⑪)
MECHA VD (IC117 (51))
TBC VD (IC117 (52))
CSYNC (IC117 (53))
MECHA FLD (IC117 (54))
XSG V RST (IC117 (100))
CK CONT (IC117 (99))
BOTH REC (IC117 (93))
DA STB (IC117 ㉒)
HALL GAIN
HALL OFFSET
CL
MEMI VD (IC152 (51))
MEMI VD
PB RF
VTR/CAMERA CONTROL
(SEE PAGE 3-13)

3-3. VTR/CAMERA CONTROL BLOCK DIAG

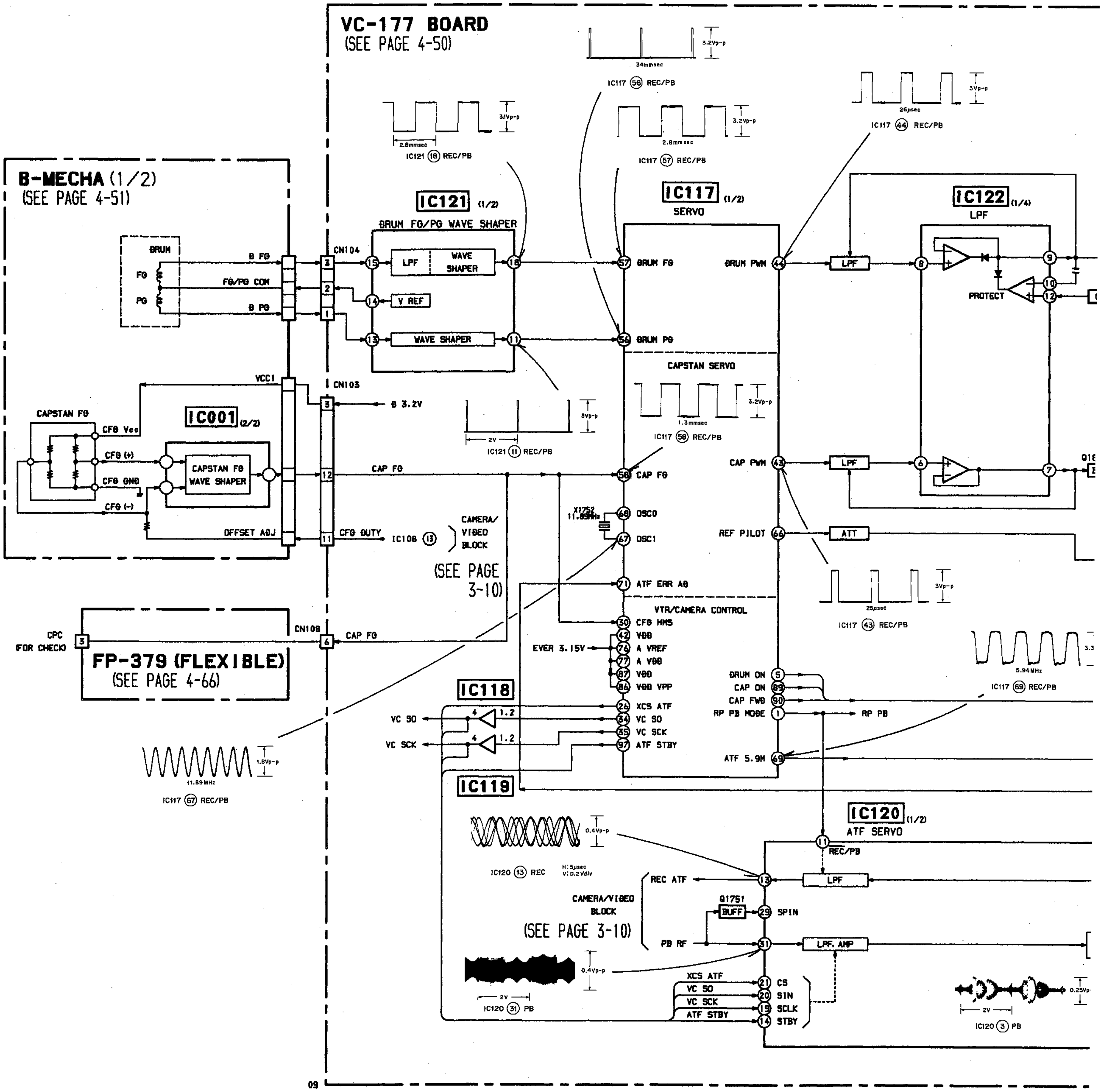

SE-51 BOARD (SEE PAGE 4-10)
SE451
YAW SENSOR
LPF
IC451 (1/2)
IC452 (1/4)
IC45
SE452
PITCH SENSOR
B5V
LPF
IC451 (1/2)
IC45
IC452 (1/4)
IC251 (1/
IRIS DRIVE
CN113
TEMP COM
TEMP OUT
B3.2V
M904 IRIS METER
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
B3.2V
Q251
DRIVE
IC253 (1/4)
HALL BIAS CONTROL
BIAS (+)
H
HALL (+)
HALL (-)
BIAS (-)
Q252
ZOOM LENS UNIT
GND
IC253 (1/4
HALL GAIN CONTROL
SENSE
Q253
B3.2V
ZOOM SENSER
ZM RST 1
ZM RST SENS1
LENS RST LED
FC RST SENS
FOCUS SENSER
FC RST
M906 ZOOM MOTOR
ZM XA
ZM A
ZM XB
ZM B
M905 FOCUS MOTOR
FC A
FC XA
FC B
FC XB
09

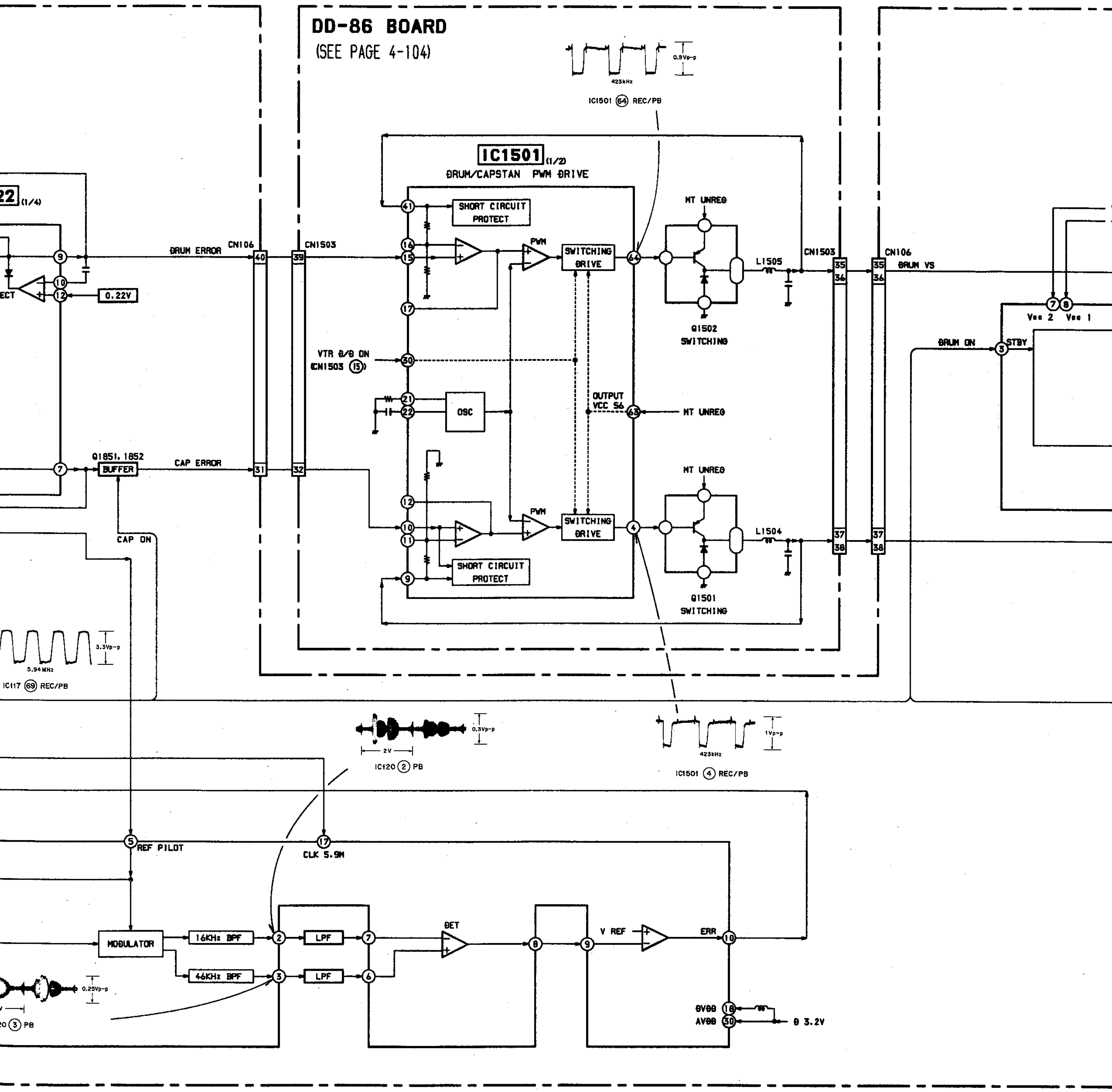
OL BLOCK DIAGRAM


10)
IC451 (1/2)
IC452 (1/4)
IC453
IC454
IC455 A/D CONV.
YS
DVDD
SCK
SIN
SO
CS
SYBY
PS
CLK
CN451
CN202
A4.9V
A 4.9V
D 3.2V
XVC SCK2
VC SO2
VC SI2
XCS VST AD
XRST PDR
CL
C RESET
Q254
VC-177 BOARD
(SEE PAGE 4-29, 45, 50)
2.8Vp-p
20MHz
IC117 (40) REC/PB
3Vp-p
26μsec
IC117 (45) CAMERA REC
MODE CONTROL (H1-39)
(SEE PAGE 3-20)
SWP
XCC DOWN
DEW AD
VC STBY
XVC RST
XCS VC
HI SO
HI SI
HI SCK
SYS V
CN110
EVER 3.15V
AV REF
AVDD
VDD
VPP
XTAL
EXTAL
X1751 20MHz
VC STBY
XRST VC
XCS VC
HI SO
HI SI
HI SCK
SYSV
XCS VST AD
LENS RST LED
XRST PDR
VST C CHARGE
ZM RST SENS1
IRIS PWM
LENS TEMP AD
HALL AD
FC RST SENS
VC SI2
VC SO2
VC SCK2
XCS SYSTEM
XCS AU
THERMAL AD
IC251 (1/2) IRIS DRIVE
IC253 (1/4) IRIS DRIVE
LPF
IRIS PWM
HALL AD
D3.2V
IC253 (1/4) BIAS CONTROL
IC253 (1/4) HALL REF
IC251 (1/2) HALL AMP
HALL GAIN
HALL OFFSET
IC253 (1/4) HALL GAIN CONTROL
AUDIO
(SEE PAGE 3-22)
SWP
XCS AU
VC SI
VC SO
VC SCK
IC118
IC119
VC SI
VC SO
XVC SCK
VC SI
VC SO
VC SCK
XCS SYSTEM
SYS V
SWP
D1758
RP PB MODE
XFE ON
X1/2 SWP
SWP
XTBC V RESET
XRST SYSTEM
XCS IO
MECHA VD
TBC VD
CSYNC
MECHA HD
MECHA FLD
BOTH REC
CK CONT
X50 V RST
DA STB
XCS EEPROM
XWE EEPROM
IC116 EEPROM
DO
DI
XSCK
VCC
XCS
RST
D3.2V
CAMERA/VIDEO
(SEE PAGE 3-10)
RP PB MODE
XFE ON
X1/2 SWP
XTBC V RESET
XRST SYSTEM
XCS IO
MECHA VD
TBC VD
CSYNC
MECHA FLD
BOTH REC
CK CONT
X50 V RST
XMP/ME
DA STB
HALL GAIN (IC108 (39))
HALL OFFSET (IC108 (40))
MEMI VD (IC152 (51))
CL (IC202 (12))
PB RF (IC101 (14))
ZM RST SENS1
LENS RST LED
FC RST SENS
IC252
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
B3
A3
B4
A4
A1
B1
A2
B2
EN4
IN4
EN3
IN3
EN2
IN2
EN1
IN1
VM1
VM2
VM3
VC
D3.2V
MT5.0V
IC255 ZOOM/FOCUS PRE DRIVE
ZM RST 1
FC RST
EN1
DIR IB
DIR IA
ENO
DIR OB
DIR OA
CK IN
XCLR
S OUT
S IN
SCK
CS
VD IN
VDD
CL
XRST PDR
XCS SYSTEM
MEMI VD
D3.2V

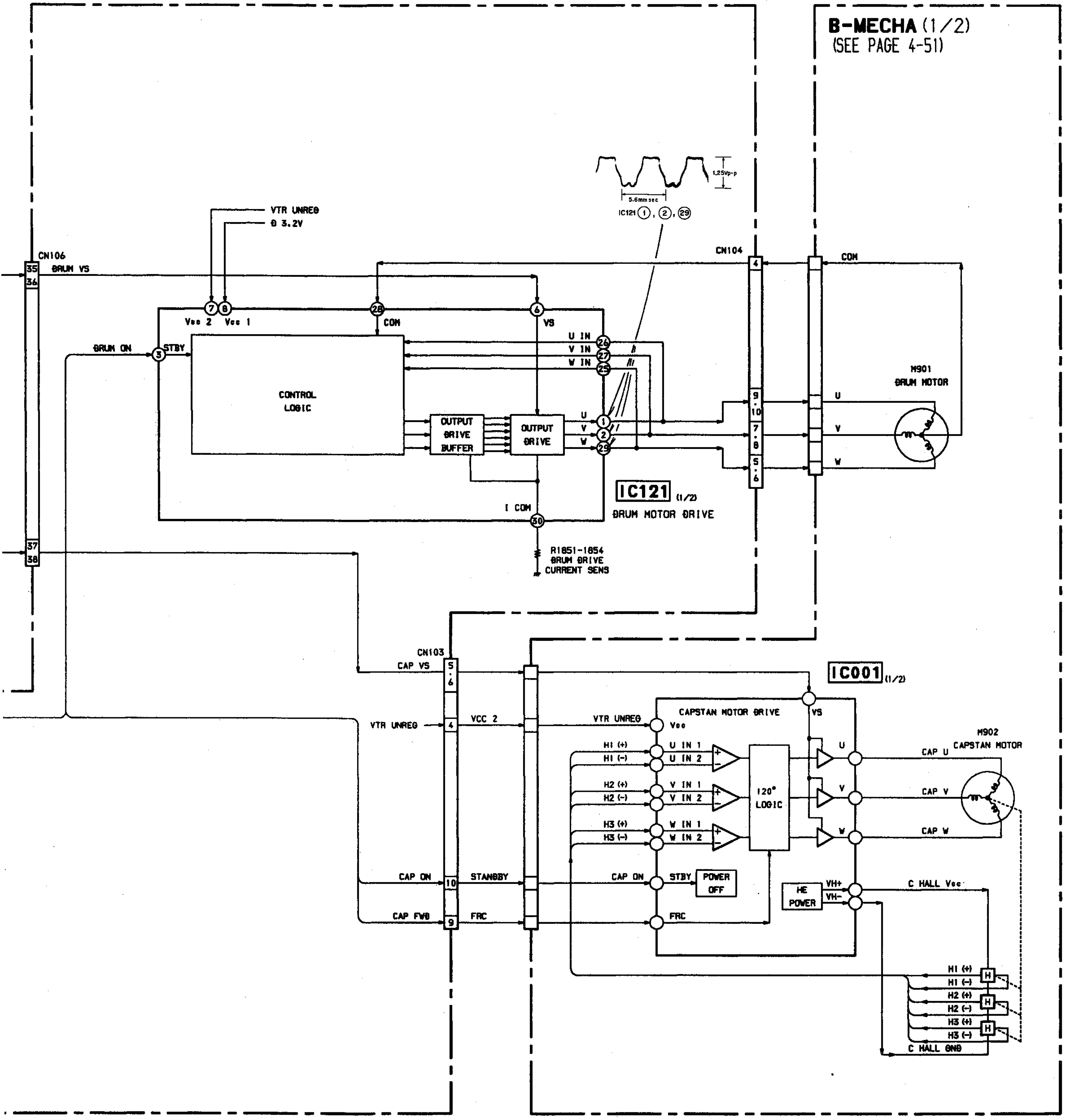

B-MECHA CHASSIS (SEE PAGE 4-51)
IC117 (1/2) VTR/CAMERA CONTROL
EVER 3.15V
42
76 AV REF
77 AVDD
87 VDD
86 VPP
40 XTAL
X1751 20MHz
41 EXTAL
31 VC STBY
36 XRST VC
59 XCS VC
60 HI SO
61 HI SI
62 HI SCK
12 SYSV
9 XCS VST AD
18 LENS RST LED
19 XRST PSR
20 VST C CHARGE
29 ZM RST SENS1
C RESET
45 IRIS PWM
78 LENS TEMP AD
79 HALL AD
84 FC RST SENS
63 VC SI2
64 VC SO2
65 VC SCK2
23 XCS SYSTEM
25 XCS AU
33 VC SI
34 VC SO
35 XVC SCK
IC118
IC119
D1758
1 RP PB MODE
2 XFE ON
3 X1/2 SWP
4 SWP
11 XTBC V RESET
21 XRST SYSTEM
24 XCS IO
51 MECHA VD
52 TBC VD
CSYNC
53 MECHA HD
54 MECHA FLD
93 DOTH REC
99 CK CONT
100 X30 V RST
22 DA STB
37 XCS EEPROM
34 XWE EEPROM
UN LOAD 47
LOAD 46
LM LIM CONT 98
XLM LIM ON 32
M SW C 16
M SW B 15
M SW A 14
DEW AD
TAPE TOP 49
TAPE END 50
S REEL FG AD 83
T REEL FG AD 72
TAPE LED ON 48
XREEL HALL ON 27
ME SW 6
TAPE RECOG AD 80
SP DET 8
CLOG DET 7
XCC DOWN
SR FG
TR FG
3Vp-p
V
IC117 93 REC
IC116 EEPROM
4 SO
3 SI
2 XSCK
8 VCC
XCS 1
RST 6
D3.2V
IC122 (1/3) LOADING MOTOR DRIVE
VTR UNREG
D 3.2V
4 VCC2
3 VCC1
25 DEC2
24 DEC1
26 LIMIT ENABLE
27 LIMIT OUT
OUT1 2
OUT2 29
IC122 (1/3) TAPE TOP/END DETECT
14 TOP OUT
17 END OUT
TOP IN 13
END IN 16
Q1853 REG
IC122 (1/3)
20
23
WAVE SHAPER
18
19
21
22
LED DRIVE Q1854
IC120 (1/2)
22 SP/LP DET
24 CLOG DET
29
27
Q1751 BUFFER
CN105
CN103
CN102
CN110
LM (+)
LM (-)
M SW (C)
M SW (B)
M SW (A)
DEW (+)
TAPE TOP (C)
TAPE END (C)
TAPE LED (A)
SENSOR VCC
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
HALL COM
TAPE LED (K)
ME/MP
HI8 MP
REC PROOF
C LOCK SW
M903 LOADING MOTOR
M
S901 MODE SWITCH
DEW SENSOR
Q001 TAPE TOP SENSOR
Q002 TAPE END SENSOR
D001 TAPE LED
H001 S REEL SENSOR
H002 T REEL SENSOR
H
S002
S001 CC DOWN SW
1, 2
4
38
40
51
12
14

3-4. SERVO BLOCK DIAGRAM

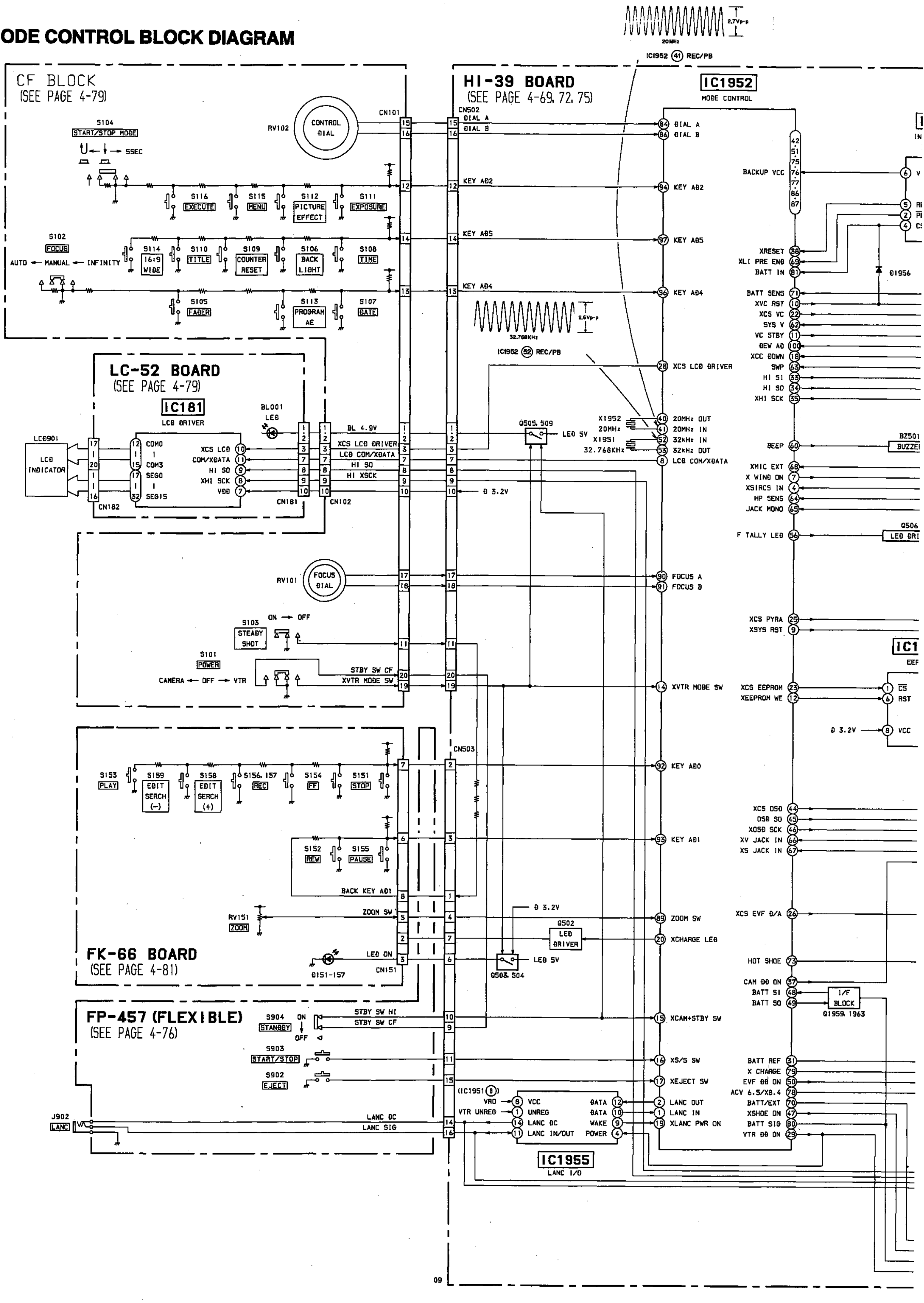

VC-177 BOARD
(SEE PAGE 4-50)
B-MECHA (1/2)
(SEE PAGE 4-51)
DRUM
FG
PG
D FG
FG/PG COM
D PG
VCC1
CAPSTAN FG
CFG Vcc
CFG (+)
CFG GND
CFG (-)
IC001 (2/2)
CAPSTAN FG WAVE SHAPER
OFFSET ADJ
CN104
CN103
B 3.2V
CAP FG
CFG DUTY
IC108 ⑬
CAMERA/ VIDEO BLOCK
(SEE PAGE 3-10)
IC121 (1/2)
DRUM FG/PG WAVE SHAPER
LPF
WAVE SHAPER
V REF
WAVE SHAPER
IC121 ⑱ REC/PB
2.8msec
3.1Vp-p
IC121 ⑪ REC/PB
2V
3Vp-p
IC117 (1/2)
SERVO
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
CAP FG
CAP PWM
OSC0
OSC1
X1752 11.89MHz
REF PILOT
ATF ERR AD
VTR/CAMERA CONTROL
CFG HMS
VDD
A VREF
A VDD
VDD
VDD VPP
EVER 3.15V
XCS ATF
VC SO
VC SCK
ATF STBY
DRUM ON
CAP ON
CAP FWD
RP PB MODE
RP PB
ATF 5.9M
IC117 56 REC/PB
34msec
3.2Vp-p
IC117 57 REC/PB
2.8msec
3.2Vp-p
IC117 44 REC/PB
26µsec
3Vp-p
IC117 58 REC/PB
1.3msec
3.2Vp-p
IC117 43 REC/PB
25µsec
3Vp-p
IC117 69 REC/PB
5.94MHz
IC117 67 REC/PB
11.89MHz
1.8Vp-p
IC122 (1/4)
LPF
LPF
PROTECT
LPF
ATT
Q18
CPC (FOR CHECK)
CN108
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
IC118
VC SO
VC SCK
IC119
IC120 (1/2)
ATF SERVO
REC/PB
REC ATF
LPF
Q1751
BUFF
SPIN
PB RF
LPF, AMP
CS
SIN
SCLK
STBY
XCS ATF
VC SO
VC SCK
ATF STBY
CAMERA/VIDEO BLOCK
(SEE PAGE 3-10)
IC120 ⑬ REC
H:5µsec V:0.2V/div
0.4Vp-p
IC120 ㉛ PB
2V
0.4Vp-p
IC120 ③ PB
2V
0.25Vp-p
09



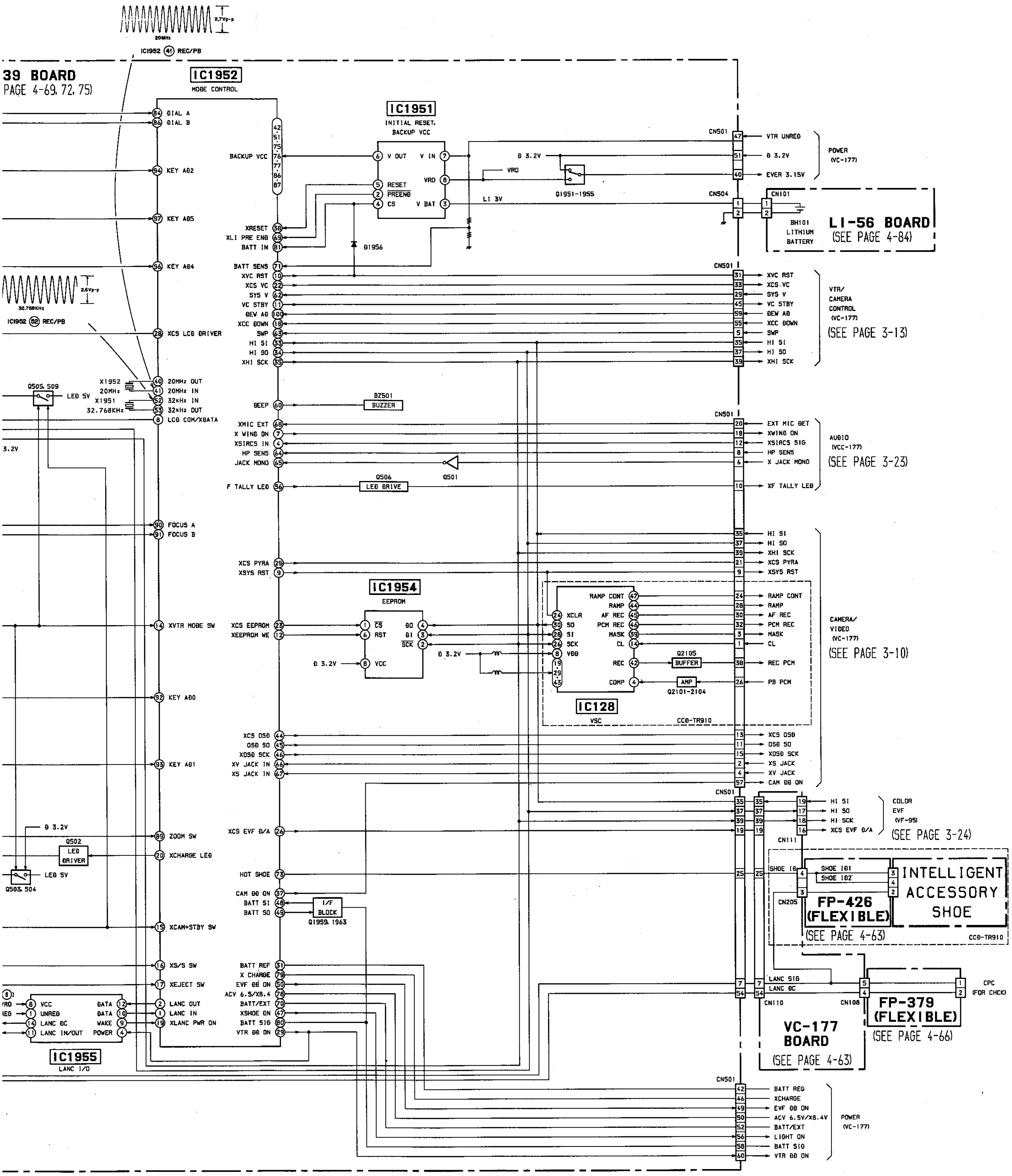
DD-86 BOARD
(SEE PAGE 4-104)
0.9Vp-p
423kHz
IC1501 (64) REC/PB
IC1501 (1/2)
DRUM/CAPSTAN PWM DRIVE
SHORT CIRCUIT PROTECT
PWM
SWITCHING DRIVE
MT UNREG
Q1502 SWITCHING
L1505
CN1503
CN106
DRUM VS
DRUM ERROR
CN106
CN1503
0.22V
(1/4)
ECT
VTR B/B ON (CN1503 (15))
OSC
OUTPUT VCC S6
MT UNREG
Q1851, 1852
BUFFER
CAP ERROR
CAP ON
L1504
Q1501 SWITCHING
Vcc 2
Vcc 1
DRUM ON
STBY
3.3Vp-p
5.94MHz
IC117 (69) REC/PB
0.3Vp-p
2V
IC120 (2) PB
1Vp-p
423kHz
IC1501 (4) REC/PB
REF PILOT
CLK 5.9M
MODULATOR
16KHz BPF
46KHz BPF
LPF
LPF
DET
V REF
ERR
0.25Vp-p
20 (3) PB
DVDD
AVDD
D 3.2V


B-MECHA (1/2)
(SEE PAGE 4-51)
1.25Vp-p
5.6mm sec
IC121 ①, ②, ㉙
VTR UNREG
D 3.2V
CN106
35
36
DRUM VS
37
38
CN104
4
COM
7
8
Vcc 2
Vcc 1
28
COM
6
VS
DRUM ON
3
STBY
U IN
V IN
W IN
26
27
25
CONTROL
LOGIC
OUTPUT
DRIVE
BUFFER
OUTPUT
DRIVE
U
V
W
1
2
29
9
10
7
8
5
6
U
V
W
M901
DRUM MOTOR
IC121 (1/2)
DRUM MOTOR DRIVE
I COM
30
R1851-1854
DRUM DRIVE
CURRENT SENS
CN103
CAP VS
5
6
IC001 (1/2)
CAPSTAN MOTOR DRIVE
VS
VTR UNREG
4
VCC 2
VTR UNREG
Vcc
H1 (+)
H1 (-)
U IN 1
U IN 2
H2 (+)
H2 (-)
V IN 1
V IN 2
H3 (+)
H3 (-)
W IN 1
W IN 2
120°
LOGIC
U
V
W
CAP U
CAP V
CAP W
M902
CAPSTAN MOTOR
CAP ON
10
STANDBY
CAP ON
STBY
POWER
OFF
HE
POWER
VH+
VH-
C HALL Vcc
CAP FWD
9
FRC
FRC
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
H
H
H
C HALL GND

3-5. MODE CONTROL BLOCK DIAGRAM

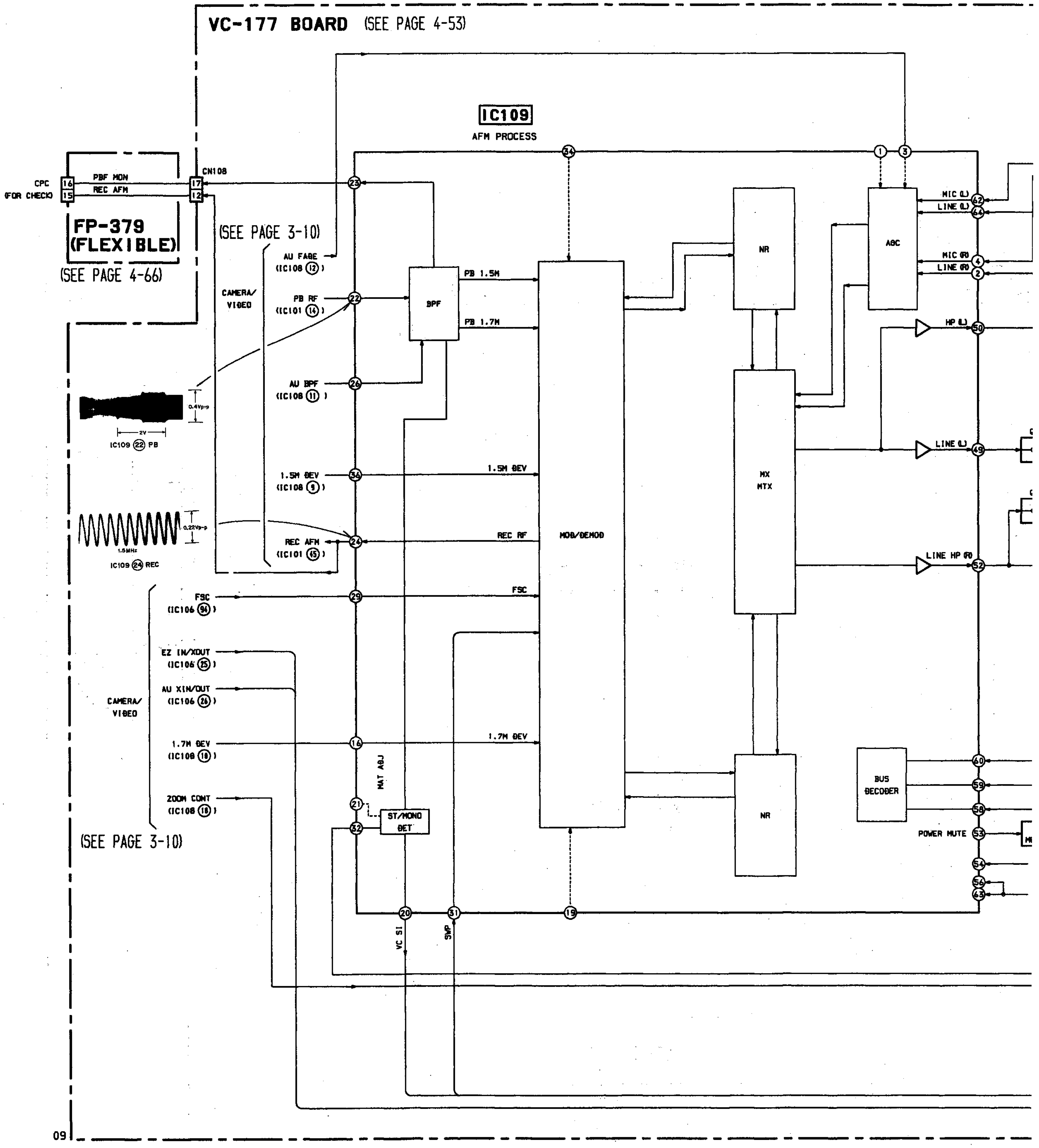


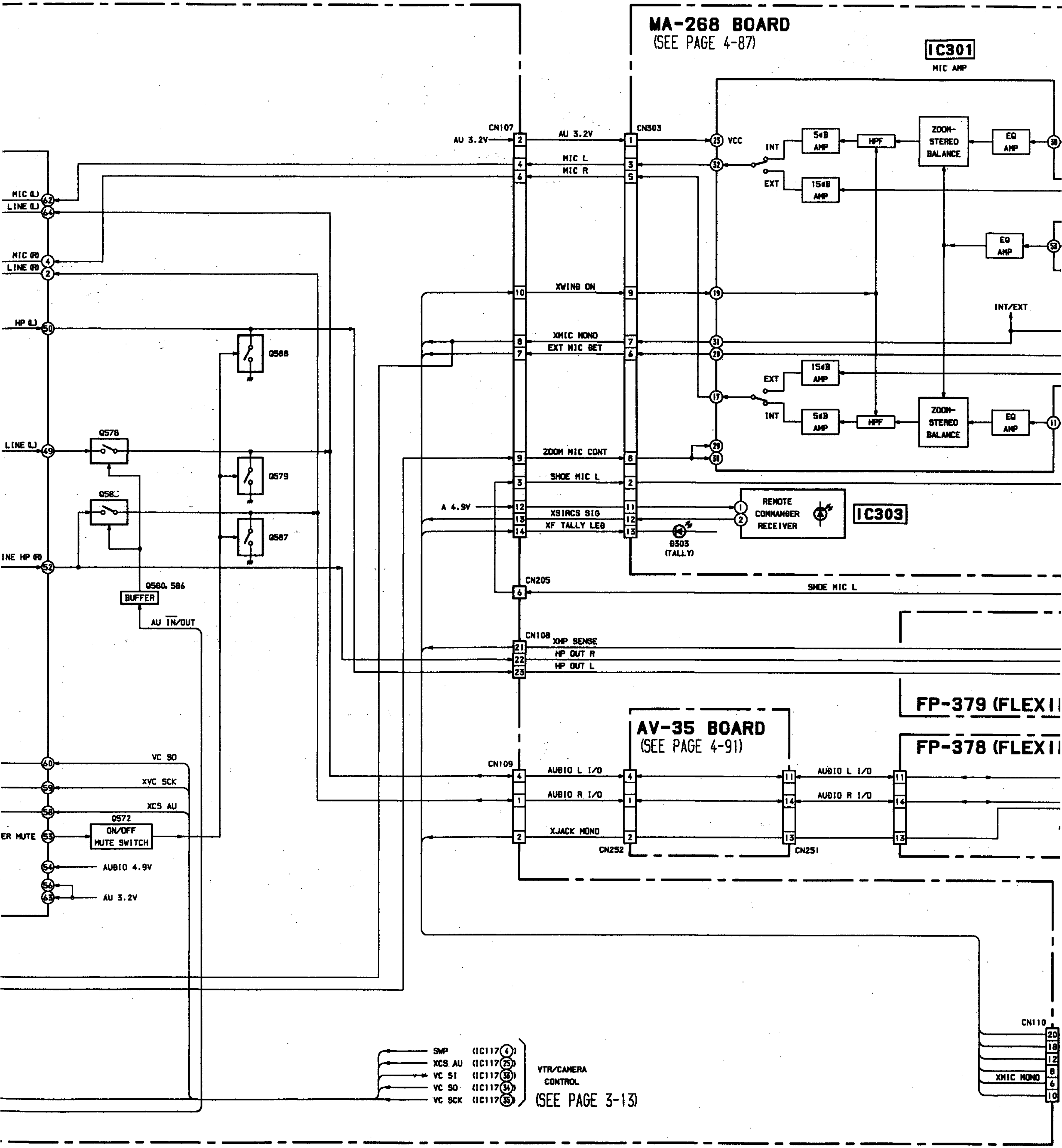
2.7Vp-p
20MHz
IC1952 (41) REC/PB
CF BLOCK
(SEE PAGE 4-79)
S104
START/STOP MODE
5SEC
RV102
CONTROL DIAL
CN101
S116 EXECUTE
S115 MENU
S112 PICTURE EFFECT
S111 EXPOSURE
S102 FOCUS
AUTO ← MANUAL ← INFINITY
S114 16:9 WIDE
S110 TITLE
S109 COUNTER RESET
S106 BACK LIGHT
S108 TIME
S105 FADER
S113 PROGRAM AE
S107 DATE
HI-39 BOARD
(SEE PAGE 4-69, 72, 75)
CN502
DIAL A
DIAL B
KEY AD2
KEY AD5
KEY AD4
2.6Vp-p
32.768KHz
IC1952 (52) REC/PB
IC1952
MODE CONTROL
DIAL A
DIAL B
KEY AD2
KEY AD5
KEY AD4
XCS LCD DRIVER
BACKUP VCC
XRESET
XLI PRE END
BATT IN
D1956
BATT SENS
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
LC-52 BOARD
(SEE PAGE 4-79)
IC181
LCD DRIVER
BL001
LED
LCD901
LCD INDICATOR
COM0
COM3
SEG0
SEG15
CN182
XCS LCD
COM/XDATA
HI SO
XHI SCK
VDD
CN181
CN102
BL 4.9V
XCS LCD DRIVER
LCD COM/XDATA
HI SO
HI XSCK
D 3.2V
Q505, 509
LED 5V
X1952 20MHz
X1951 32.768KHz
20MHz OUT
20MHz IN
32kHz IN
32kHz OUT
LCD COM/XDATA
BEEP
BZ501 BUZZER
XMIC EXT
X WIND ON
XSIRCS IN
HP SENS
JACK MONO
F TALLY LED
Q506 LED DRI
RV101
FOCUS DIAL
FOCUS A
FOCUS B
XCS PYRA
XSYS RST
S103 STEADY SHOT
ON → OFF
S101 POWER
CAMERA ← OFF → VTR
STBY SW CF
XVTR MODE SW
XVTR MODE SW
XCS EEPROM
XEEPROM WE
CS
RST
D 3.2V
VCC
CN503
S153 PLAY
S159 EDIT SERCH (−)
S158 EDIT SERCH (+)
S156, 157 REC
S154 FF
S151 STOP
KEY AD0
XCS OSD
OSD SO
XOSD SCK
XV JACK IN
XS JACK IN
S152 REW
S155 PAUSE
KEY AD1
BACK KEY AD1
RV151 ZOOM
ZOOM SW
D 3.2V
Q502 LED DRIVER
ZOOM SW
XCS EVF D/A
XCHARGE LED
FK-66 BOARD
(SEE PAGE 4-81)
D151-157
LED ON
CN151
Q503, 504
LED 5V
HOT SHOE
CAM DD ON
BATT SI
BATT SO
I/F BLOCK
Q1959, 1963
FP-457 (FLEXIBLE)
(SEE PAGE 4-76)
S904 STANDBY
ON OFF
STBY SW HI
STBY SW CF
XCAM+STBY SW
S903 START/STOP
XS/S SW
S902 EJECT
XEJECT SW
BATT REF
X CHARGE
EVF DD ON
ACV 6.5/X8.4
BATT/EXT
XSHOE ON
BATT SIG
VTR DD ON
J902 LANC
LANC DC
LANC SIG
(IC1951 (8))
VRO
VTR UNREG
VCC
UNREG
LANC DC
LANC IN/OUT
DATA
DATA
WAKE
POWER
LANC OUT
LANC IN
XLANC PWR ON
IC1955
LANC I/O
09

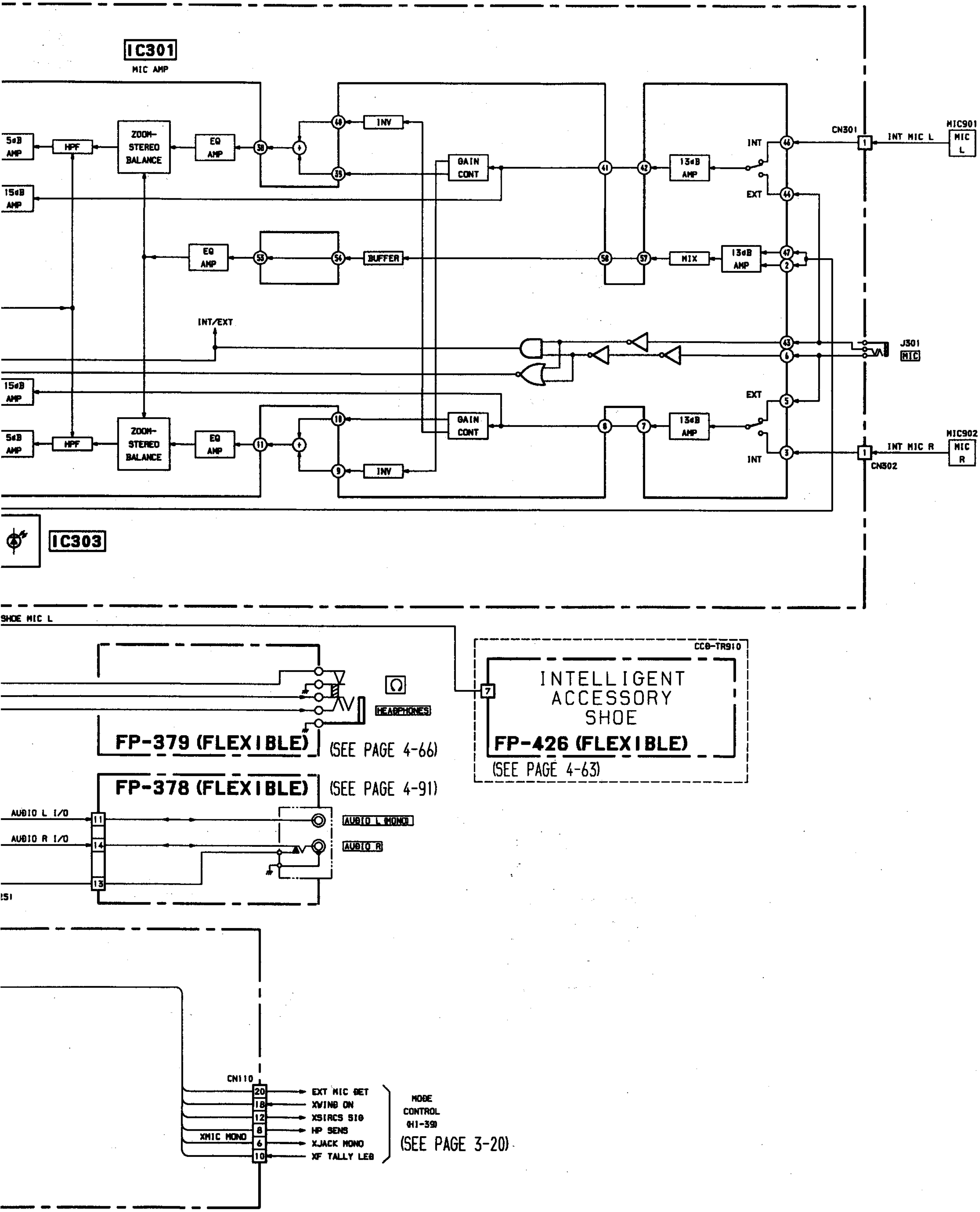


2.7Vp-p
20MHz
IC1952 (41) REC/PB
39 BOARD
PAGE 4-69, 72, 75)
IC1952
MODE CONTROL
DIAL A
DIAL B
KEY AD2
KEY AD5
KEY AD4
XCS LCD DRIVER
20MHz OUT
20MHz IN
32kHz IN
32kHz OUT
LCD COM/XDATA
FOCUS A
FOCUS B
XVTR MODE SW
KEY AD0
KEY AD1
ZOOM SW
XCHARGE LED
XCAM+STBY SW
XS/S SW
XEJECT SW
LANC OUT
LANC IN
XLANC PWR ON
2.6Vp-p
32.768KHz
IC1952 (52) REC/PB
Q505, 509
LED 5V
X1952
20MHz
X1951
32.768KHz
3.2V
D 3.2V
Q502
LED DRIVER
LED 5V
Q503, 504
VCC
UNREG
LANC DC
LANC IN/OUT
DATA
DATA
WAKE
POWER
IC1955
LANC I/O
BACKUP VCC
XRESET
XLI PRE END
BATT IN
BATT SENS
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
BEEP
XMIC EXT
X WIND ON
XSIRCS IN
HP SENS
JACK MONO
F TALLY LED
XCS PYRA
XSYS RST
XCS EEPROM
XEEPROM WE
XCS OSD
OSD SO
XOSD SCK
XV JACK IN
XS JACK IN
XCS EVF D/A
HOT SHOE
CAM DD ON
BATT SI
BATT SO
BATT REF
X CHARGE
EVF DD ON
ACV 6.5/X8.4
BATT/EXT
XSHOE ON
BATT SIG
VTR DD ON
IC1951
INITIAL RESET,
BACKUP VCC
V OUT
V IN
VRO
RESET
PREEND
CS
V BAT
D 3.2V
VRO
Q1951-1955
LI 3V
D1956
BZ501
BUZZER
Q506
LED DRIVE
Q501
IC1954
EEPROM
CS
RST
VCC
DO
DI
SCK
D 3.2V
D 3.2V
I/F
BLOCK
Q1959, 1963
RAMP CONT
RAMP
AF REC
PCM REC
MASK
CL
REC
COMP
XCLR
SO
SI
SCK
VDD
Q2105
BUFFER
AMP
Q2101-2104
IC128
VSC
CCD-TR910
CN501
VTR UNREG
D 3.2V
EVER 3.15V
POWER
(VC-177)
CN504
CN101
BH101
LITHIUM
BATTERY
LI-56 BOARD
(SEE PAGE 4-84)
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
VTR/
CAMERA
CONTROL
(VC-177)
(SEE PAGE 3-13)
EXT MIC DET
XWIND ON
XSIRCS SIG
HP SENS
X JACK MONO
XF TALLY LED
AUDIO
(VCC-177)
(SEE PAGE 3-23)
HI SI
HI SO
XHI SCK
XCS PYRA
XSYS RST
RAMP CONT
RAMP
AF REC
PCM REC
MASK
CL
REC PCM
PB PCM
XCS OSD
OSD SO
XOSD SCK
XS JACK
XV JACK
CAM DD ON
CAMERA/
VIDEO
(VC-177)
(SEE PAGE 3-10)
HI SI
HI SO
HI SCK
XCS EVF D/A
COLOR
EVF
(VF-95)
(SEE PAGE 3-24)
CN111
SHOE ID
SHOE ID1
SHOE ID2
CN205
FP-426
(FLEXIBLE)
(SEE PAGE 4-63)
INTELLIGENT
ACCESSORY
SHOE
CCD-TR910
LANC SIG
LANC DC
CN110
CN108
CPC
(FOR CHCK)
FP-379
(FLEXIBLE)
(SEE PAGE 4-66)
VC-177
BOARD
(SEE PAGE 4-63)
BATT REG
XCHARGE
EVF DD ON
ACV 6.5V/X8.4V
BATT/EXT
LIGHT ON
BATT SIG
VTR DD ON
POWER
(VC-177)

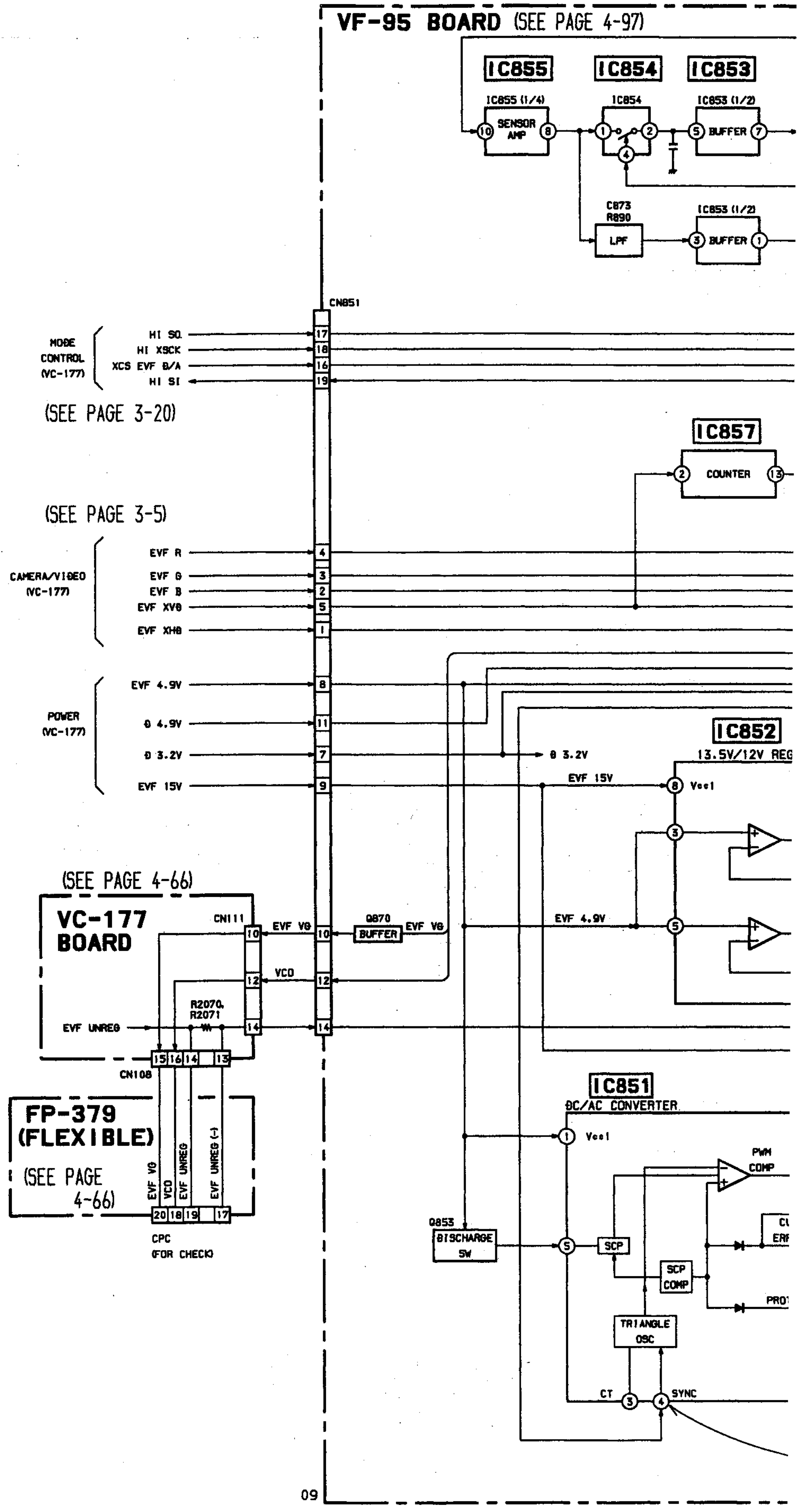
3-6. AUDIO BLOCK DIAGRAM

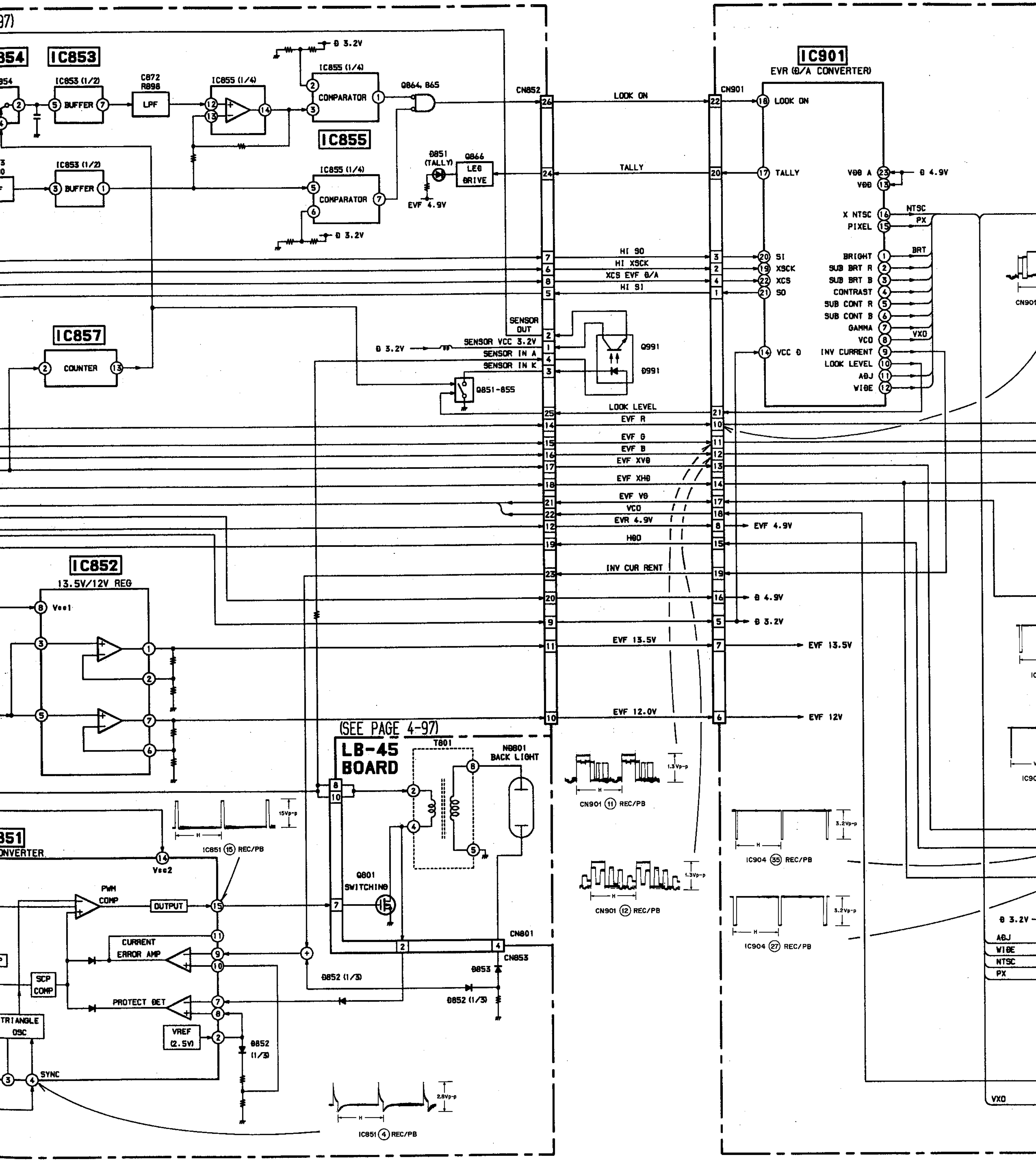

VC-177 BOARD (SEE PAGE 4-53)
IC109
AFM PROCESS
CPC (FOR CHECK)
16
15
PBF MON
REC AFM
17
12
CN108
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
(SEE PAGE 3-10)
CAMERA/ VIDEO
AU FADE (IC108 ⑫)
PB RF (IC101 ⑭)
AU BPF (IC108 ⑪)
1.5M DEV (IC108 ⑨)
REC AFM (IC101 ㊺)
0.4Vp-p
2V
IC109 ㉒ PB
0.22Vp-p
1.5MHz
IC109 ㉔ REC
FSC (IC106 (94))
EZ IN/XOUT (IC106 ㉕)
AU XIN/OUT (IC106 ㉖)
CAMERA/ VIDEO
1.7M DEV (IC108 ⑱)
ZOOM CONT (IC108 ⑱)
(SEE PAGE 3-10)
㉓
㉒
㉖
㉞
㉔
㉙
⑯
㉑
㉜
⑳
㉛
⑲
㉞
BPF
PB 1.5M
PB 1.7M
1.5M DEV
REC RF
FSC
1.7M DEV
MOD/DEMOD
MAT ADJ
ST/MONO DET
VC SI
SWP
NR
MX MTX
NR
AGC
①
③
MIC (L) ㊷
LINE (L) ㊹
MIC (R) ④
LINE (R) ②
HP (L) ㊿
LINE (L) ㊾
LINE HP (R) ㊾52
BUS DECODER
(60)
(59)
(58)
POWER MUTE (53)
(54)
(56)
(63)
09


MA-268 BOARD
(SEE PAGE 4-87)
IC301
MIC AMP
CN107
AU 3.2V
CN303
AU 3.2V
MIC L
MIC R
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INT/EXT
MIC (L)
LINE (L)
MIC (R)
LINE (R)
HP (L)
XWIND ON
XMIC MONO
EXT MIC DET
Q588
Q579
Q587
Q578
LINE (L)
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
REMOTE COMMANDER RECEIVER
IC303
D303 (TALLY)
INE HP (R)
Q580, 586
BUFFER
AU IN/OUT
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT R
HP OUT L
FP-379 (FLEXI
AV-35 BOARD
(SEE PAGE 4-91)
FP-378 (FLEXI
VC SO
XVC SCK
XCS AU
CN109
AUDIO L I/O
AUDIO R I/O
XJACK MONO
CN252
CN251
Q572
ON/OFF MUTE SWITCH
ER MUTE
AUDIO 4.9V
AU 3.2V
CN110
XMIC MONO
SWP (IC117④)
XCS AU (IC117㉕)
VC SI (IC117㉝)
VC SO (IC117㉞)
VC SCK (IC117㉟)
VTR/CAMERA CONTROL
(SEE PAGE 3-13)

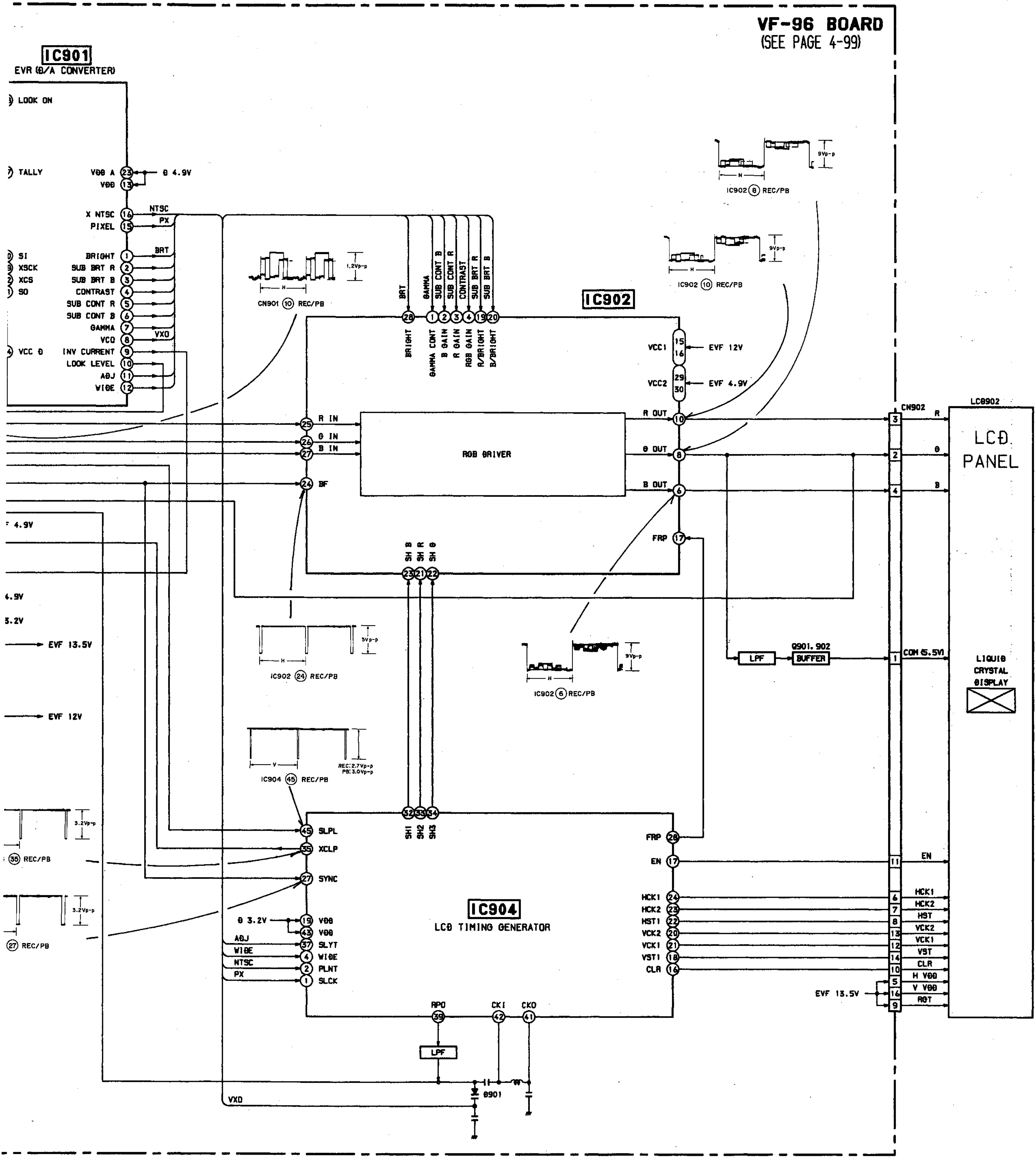

IC301
MIC AMP
5dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
13dB AMP
15dB AMP
EQ AMP
BUFFER
MIX
13dB AMP
INT/EXT
INT
EXT
CN301
INT MIC L
MIC901
MIC L
J301
MIC
EXT
INT
CN302
INT MIC R
MIC902
MIC R
15dB AMP
5dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
13dB AMP
IC303
SHOE MIC L
CCD-TR910
INTELLIGENT ACCESSORY SHOE
FP-426 (FLEXIBLE)
(SEE PAGE 4-63)
HEADPHONES
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
FP-378 (FLEXIBLE)
(SEE PAGE 4-91)
AUDIO L I/O
AUDIO R I/O
AUDIO L (MONO)
AUDIO R
CN110
EXT MIC SET
XVIND ON
XSIRCS SIG
HP SENS
XMIC MONO
XJACK MONO
XF TALLY LED
MODE CONTROL (HI-39)
(SEE PAGE 3-20)

3-7. COLOR EVF BLOCK DIAGRAM

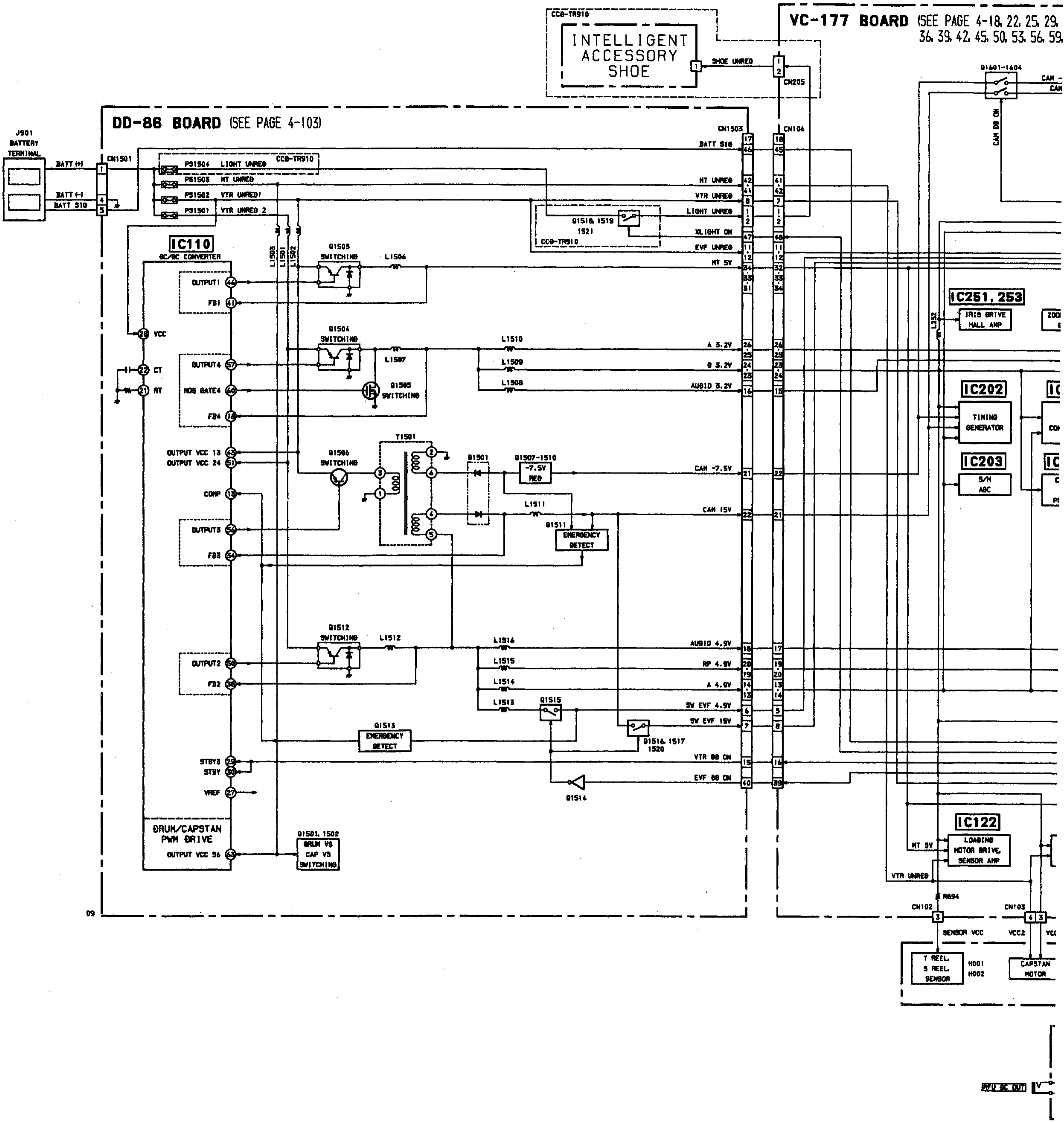

VF-95 BOARD (SEE PAGE 4-97)
IC855
IC854
IC853
IC855 (1/4)
SENSOR AMP
IC854
IC853 (1/2)
BUFFER
C873
R890
LPF
IC853 (1/2)
BUFFER
CN851
MODE CONTROL (VC-177)
HI SO
HI XSCK
XCS EVF D/A
HI SI
(SEE PAGE 3-20)
IC857
COUNTER
(SEE PAGE 3-5)
CAMERA/VIDEO (VC-177)
EVF R
EVF G
EVF B
EVF XVD
EVF XHD
POWER (VC-177)
EVF 4.9V
D 4.9V
D 3.2V
EVF 15V
D 3.2V
IC852
13.5V/12V REG
EVF 15V
Vcc1
EVF 4.9V
(SEE PAGE 4-66)
VC-177 BOARD
CN111
EVF VG
Q870
BUFFER
EVF VG
VCO
R2070, R2071
EVF UNREG
CN108
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
EVF VG
VCO
EVF UNREG
EVF UNREG (-)
CPC (FOR CHECK)
IC851
DC/AC CONVERTER
Vcc1
PWM COMP
Q853
DISCHARGE SW
SCP
SCP COMP
TRIANGLE OSC
CT
SYNC
09

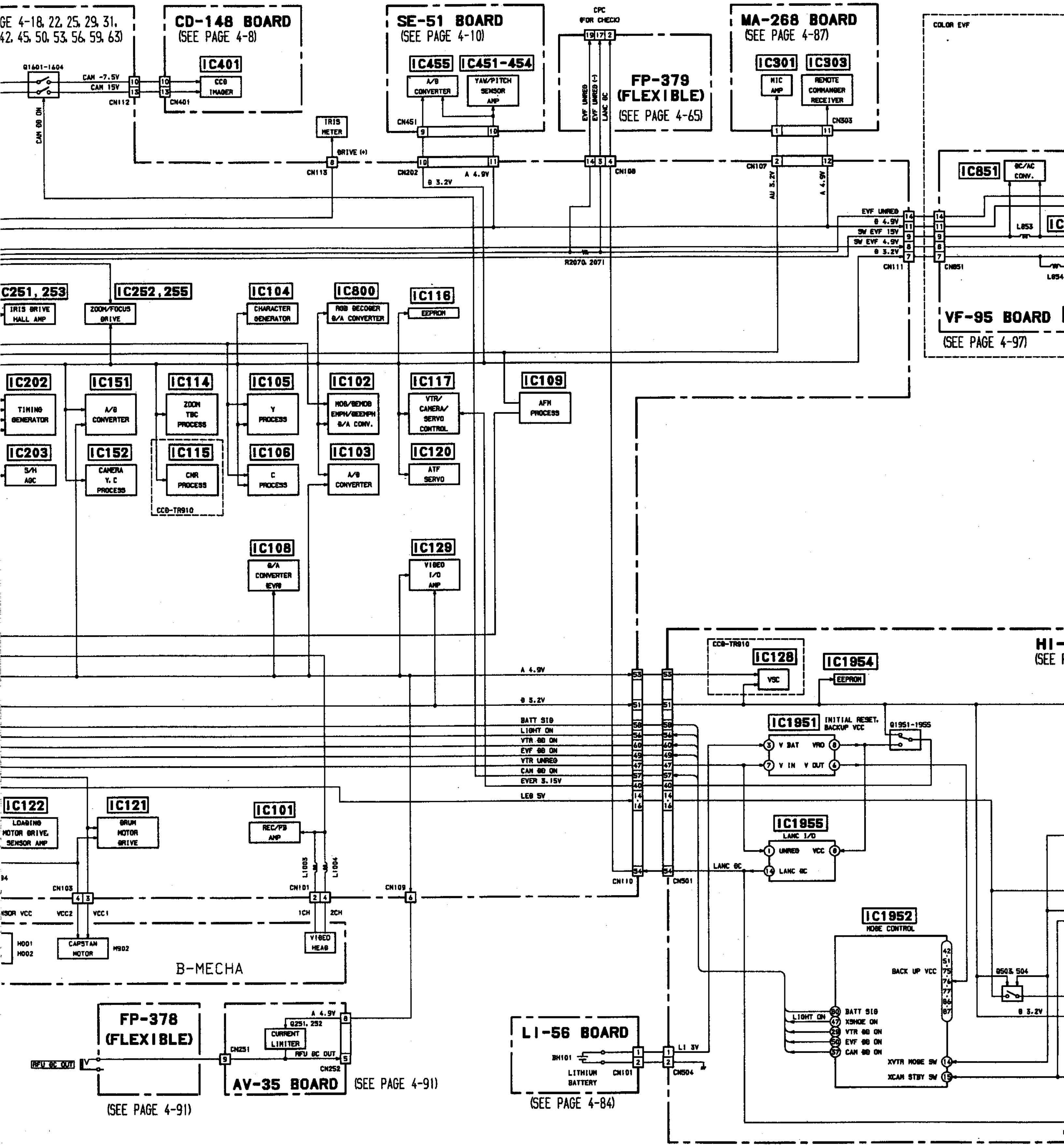


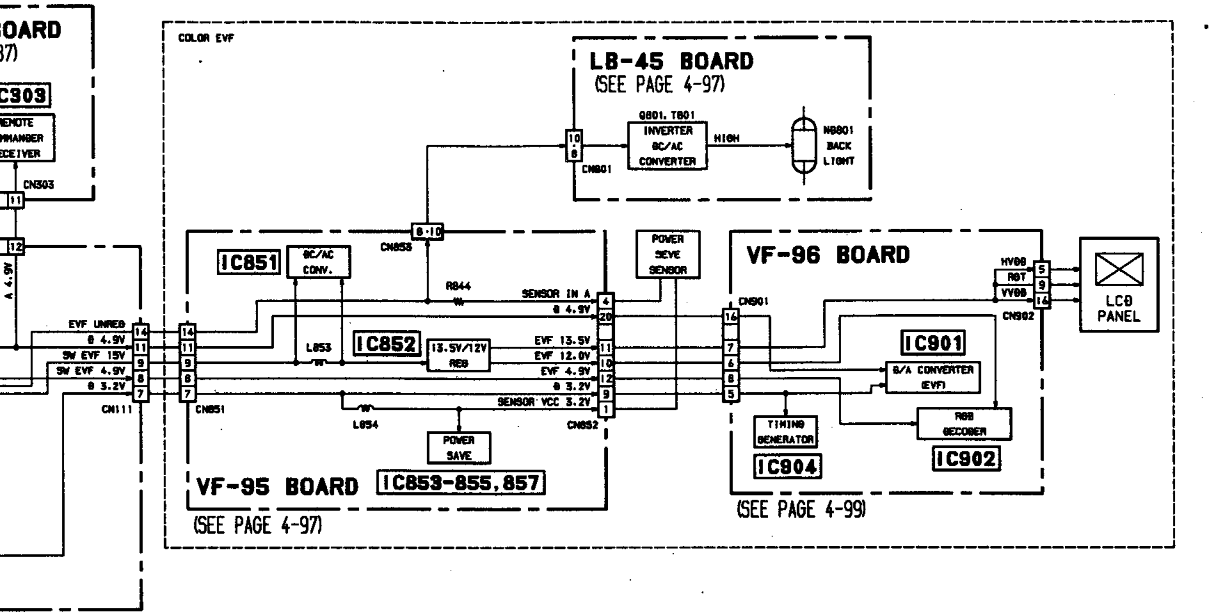
97)
354
IC853
IC853 (1/2)
BUFFER
C872
R898
LPF
IC855 (1/4)
8 3.2V
IC855 (1/4)
COMPARATOR
Q864, 865
IC855
IC853 (1/2)
BUFFER
IC855 (1/4)
COMPARATOR
8 3.2V
D851
(TALLY)
Q866
LED
DRIVE
EVF 4.9V
CN852
IC857
COUNTER
SENSOR
OUT
8 3.2V
SENSOR VCC 3.2V
SENSOR IN A
SENSOR IN K
Q851-855
Q991
D991
LOOK ON
TALLY
HI SO
HI XSCK
XCS EVF D/A
HI SI
LOOK LEVEL
EVF R
EVF G
EVF B
EVF XVD
EVF XHD
EVF VD
VCO
EVR 4.9V
HDD
INV CUR RENT
EVF 13.5V
EVF 12.0V
IC852
13.5V/12V REG
Vcc1
351
ONVERTER
Vcc2
IC851 ⑮ REC/PB
15Vp-p
H
PWM
COMP
OUTPUT
CURRENT
ERROR AMP
PROTECT DET
SCP
COMP
TRIANGLE
OSC
VREF
(2.5V)
D852
(1/3)
SYNC
(SEE PAGE 4-97)
LB-45
BOARD
T801
ND801
BACK LIGHT
Q801
SWITCHING
CN801
CN853
D853
D852 (1/3)
D852 (1/3)
2.8Vp-p
IC851 ④ REC/PB
1.3Vp-p
CN901 ⑪ REC/PB
1.3Vp-p
CN901 ⑫ REC/PB
3.2Vp-p
IC904 ㉟ REC/PB
3.2Vp-p
IC904 ㉗ REC/PB
CN901
IC901
EVR (D/A CONVERTER)
LOOK ON
TALLY
VDD A
VDD
8 4.9V
X NTSC
PIXEL
NTSC
PX
SI
XSCK
XCS
SO
BRIGHT
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA
VCO
INV CURRENT
LOOK LEVEL
ADJ
WIDE
BRT
VXO
VCC D
EVF 4.9V
8 4.9V
8 3.2V
EVF 13.5V
EVF 12V
CN901
IC
IC90
8 3.2V
ADJ
WIDE
NTSC
PX
VXO

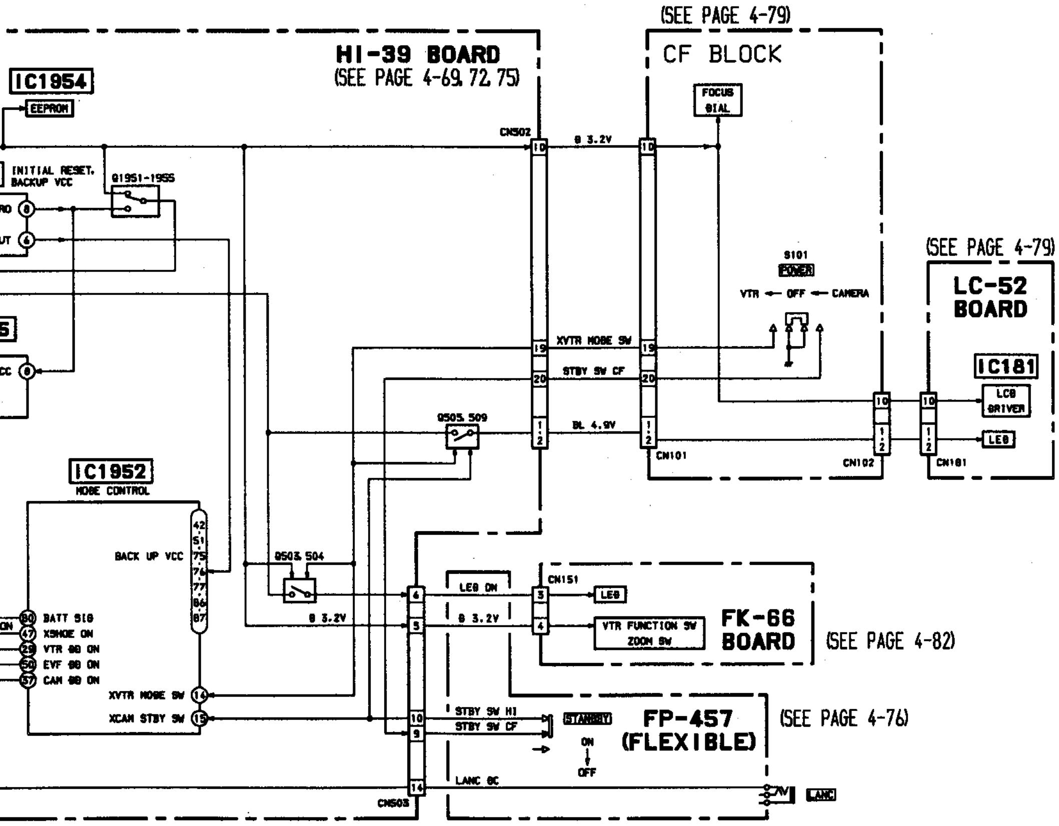

VF-96 BOARD
(SEE PAGE 4-99)
IC901
EVR (D/A CONVERTER)
LOOK ON
TALLY
VDD A 23
VDD 13
D 4.9V
X NTSC 16
PIXEL 15
NTSC
PX
SI
XSCK
XCS
SO
BRIGHT 1
SUB BRT R 2
SUB BRT B 3
CONTRAST 4
SUB CONT R 5
SUB CONT B 6
GAMMA 7
VCO 8
VXO
VCC D
INV CURRENT 9
LOOK LEVEL 10
ADJ 11
WIDE 12
BRT
1.2Vp-p
H
CN901 10 REC/PB
BRT
GAMMA
SUB CONT B
SUB CONT R
CONTRAST
SUB BRT R
SUB BRT B
28 1 2 3 4 19 20
BRIGHT
GAMMA CONT
B GAIN
R GAIN
RGB GAIN
R/BRIGHT
B/BRIGHT
IC902
VCC1 15 16 EVF 12V
VCC2 29 30 EVF 4.9V
9Vp-p
IC902 8 REC/PB
IC902 10 REC/PB
R IN 25
G IN 26
B IN 27
BF 24
RGB DRIVER
R OUT 10
G OUT 8
B OUT 6
FRP 17
SH B
SH R
SH G
23 21 22
F 4.9V
4.9V
5.2V
EVF 13.5V
EVF 12V
5Vp-p
IC902 24 REC/PB
9Vp-p
IC902 6 REC/PB
REC:2.7Vp-p
PB:3.0Vp-p
V
IC904 45 REC/PB
3.2Vp-p
35 REC/PB
27 REC/PB
CN902
LCD902
LCD PANEL
R
G
B
3 2 4
Q901, 902
LPF
BUFFER
COM (5.5V)
1
LIQUID CRYSTAL DISPLAY
32 33 34
SH1 SH2 SH3
45 SLPL
35 XCLP
27 SYNC
D 3.2V
19 VDD
43 VDD
ADJ
WIDE
NTSC
PX
37 SLYT
4 WIDE
2 PLNT
1 SLCK
IC904
LCD TIMING GENERATOR
FRP 28
EN 17
HCK1 24
HCK2 23
HST1 22
VCK2 20
VCK1 21
VST1 18
CLR 16
11 EN
6 HCK1
7 HCK2
8 HST
13 VCK2
12 VCK1
14 VST
10 CLR
5 H VDD
16 V VDD
9 RGT
EVF 13.5V
RPO 39
CKI 42
CKO 41
LPF
D901
VXO

3-8. POWER SUPPLY BLOCK DIAGRAM


CCB-TR910
INTELLIGENT ACCESSORY SHOE
SHOE UNREG
CN205
VC-177 BOARD (SEE PAGE 4-18, 22, 25, 29, 36, 39, 42, 45, 50, 53, 56, 59,
Q1601-1604
CAM DD ON
DD-86 BOARD (SEE PAGE 4-103)
J901 BATTERY TERMINAL
BATT (+)
BATT (-)
BATT SIG
CN1501
PS1504 LIGHT UNREG
PS1503 MT UNREG
PS1502 VTR UNREG1
PS1501 VTR UNREG 2
CCB-TR910
CN1503
CN106
BATT SIG
MT UNREG
VTR UNREG
LIGHT UNREG
XLIGHT ON
EVF UNREG
MT 5V
Q1518, 1519 1521
IC110
DC/DC CONVERTER
OUTPUT1
FB1
VCC
CT
RT
OUTPUT4
MOS GATE4
FB4
OUTPUT VCC 13
OUTPUT VCC 24
COMP
OUTPUT3
FB3
OUTPUT2
FB2
STBY3
STBY
VREF
DRUM/CAPSTAN PWM DRIVE
OUTPUT VCC 56
L1503
L1501
L1502
Q1503 SWITCHING
L1506
Q1504 SWITCHING
L1507
Q1505 SWITCHING
L1510
L1509
L1508
A 3.2V
D 3.2V
AUDIO 3.2V
T1501
Q1506 SWITCHING
D1501
Q1507-1510
-7.5V REG
L1511
Q1511
EMERGENCY DETECT
CAM -7.5V
CAM 15V
Q1512 SWITCHING
L1512
L1516
L1515
L1514
L1513
Q1515
AUDIO 4.9V
RP 4.9V
A 4.9V
SV EVF 4.9V
SV EVF 15V
Q1513 EMERGENCY DETECT
Q1516, 1517 1520
VTR DD ON
EVF DD ON
Q1514
Q1501, 1502 DRUM VS CAP VS SWITCHING
IC251, 253
IRIS DRIVE HALL AMP
L252
IC202
TIMING GENERATOR
IC203
S/H AGC
IC122
LOADING MOTOR DRIVE, SENSOR AMP
MT 5V
VTR UNREG
R694
CN102
CN103
SENSOR VCC
VCC2
T REEL, S REEL SENSOR
H001 H002
CAPSTAN MOTOR
RFU DC OUT
09

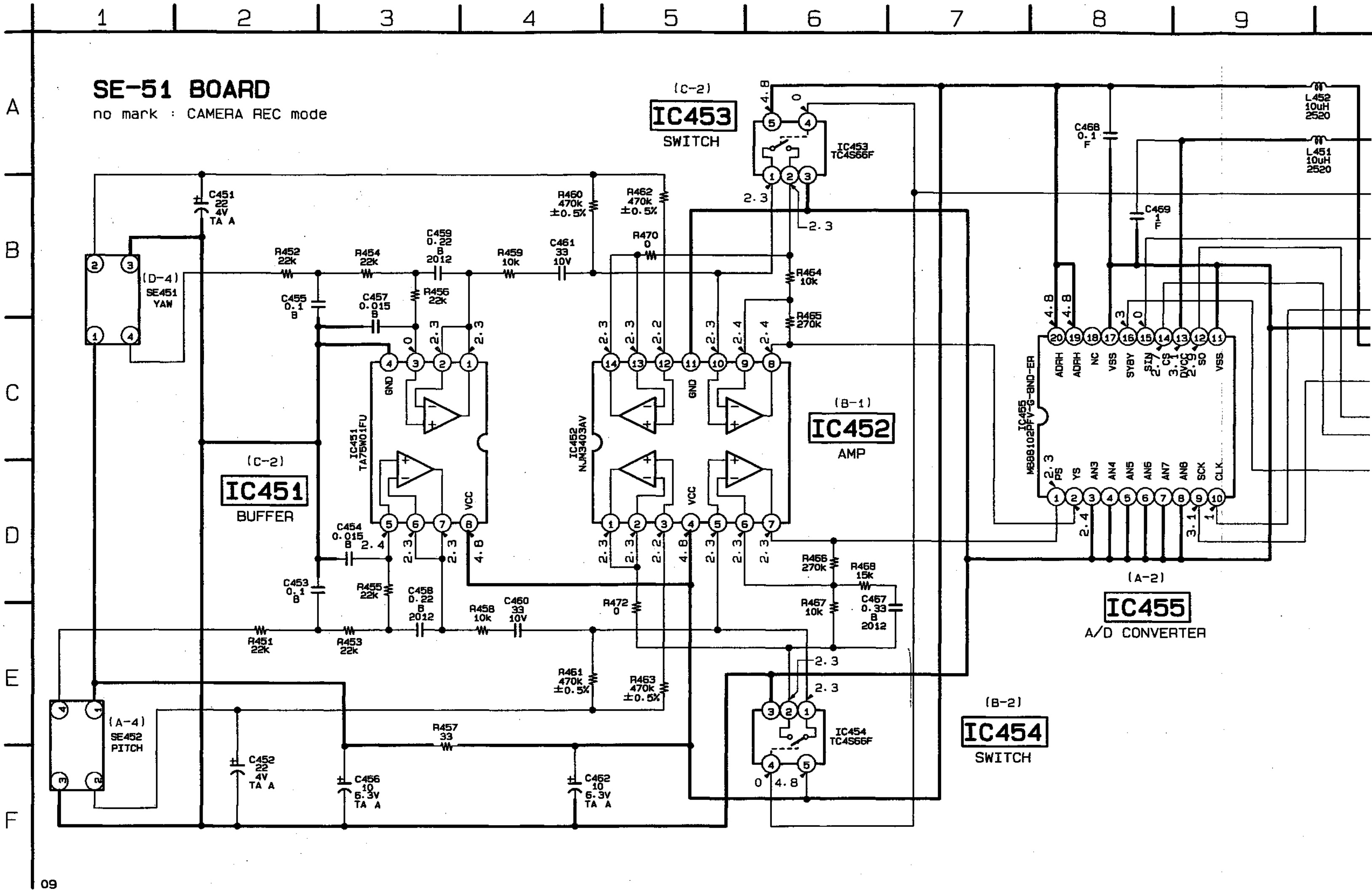

GE 4-18, 22, 25, 29, 31,
42, 45, 50, 53, 56, 59, 63)
Q1601-1604
CAM -7.5V
CAM 15V
CN112
CAM 8B ON
CD-148 BOARD
(SEE PAGE 4-8)
IC401
CCB IMAGER
CN401
IRIS METER
DRIVE (+)
CN113
SE-51 BOARD
(SEE PAGE 4-10)
IC455
IC451-454
A/D CONVERTER
YAW/PITCH SENSOR AMP
CN451
CN202
A 4.9V
B 3.2V
CPC (FOR CHECK)
FP-379 (FLEXIBLE)
(SEE PAGE 4-65)
EVF UNREG
EVF UNREG (-)
LANC DC
CN108
R2070, 2071
MA-268 BOARD
(SEE PAGE 4-87)
IC301
IC303
MIC AMP
REMOTE COMMANDER RECEIVER
CN303
CN107
AU 3.2V
A 4.9V
EVF UNREG
B 4.9V
SW EVF 15V
SW EVF 4.9V
B 3.2V
CN111
COLOR EVF
IC851
DC/AC CONV.
L853
L854
CN851
VF-95 BOARD
(SEE PAGE 4-97)
IC251, 253
IRIS DRIVE HALL AMP
IC252, 255
ZOOM/FOCUS DRIVE
IC104
CHARACTER GENERATOR
IC800
RGB DECODER D/A CONVERTER
IC116
EEPROM
IC202
TIMING GENERATOR
IC151
A/D CONVERTER
IC114
ZOOM TBC PROCESS
IC105
Y PROCESS
IC102
NOD/DEMOD EMPH/DEEMPH D/A CONV.
IC117
VTR/CAMERA/SERVO CONTROL
IC109
AFM PROCESS
IC203
S/H AGC
IC152
CAMERA Y, C PROCESS
IC115
CNR PROCESS
CCD-TR910
IC106
C PROCESS
IC103
A/D CONVERTER
IC120
ATF SERVO
IC108
D/A CONVERTER (EVR)
IC129
VIDEO I/O AMP
A 4.9V
B 3.2V
BATT SIG
LIGHT ON
VTR 8B ON
EVF 8B ON
VTR UNREG
CAM 8B ON
EVER 3.15V
LED 5V
CN110
CN501
CCD-TR910
IC128
VSC
IC1954
EEPROM
HI-
(SEE
IC1951
INITIAL RESET, BACKUP VCC
Q1951-1955
V BAT
VRO
V IN
V OUT
IC1955
LANC I/O
UNREG
VCC
LANC DC
LANC DC
IC122
LOADING MOTOR DRIVE, SENSOR AMP
IC121
DRUM MOTOR DRIVE
IC101
REC/PB AMP
L1003
L1004
CN103
CN101
CN109
SENSOR VCC
VCC2
VCC1
1CH
2CH
H001
H002
CAPSTAN MOTOR
M902
VIDEO HEAD
B-MECHA
IC1952
MODE CONTROL
BACK UP VCC
Q503, 504
B 3.2V
LIGHT ON
BATT SIG
XMODE ON
VTR 8B ON
EVF 8B ON
CAM 8B ON
XVTR MODE SW
XCAM STBY SW
FP-378 (FLEXIBLE)
(SEE PAGE 4-91)
RFU DC OUT
A 4.9V
Q251, 252
CURRENT LIMITER
RFU DC OUT
CN251
CN252
AV-35 BOARD
(SEE PAGE 4-91)
LI-56 BOARD
(SEE PAGE 4-84)
BH101
LITHIUM BATTERY
CN101
LI 3V
CN504


BOARD
IC903
REMOTE COMMANDER RECEIVER
CN303
COLOR EVF
LB-45 BOARD
(SEE PAGE 4-97)
Q801, T801
INVERTER DC/AC CONVERTER
HIGH
ND801 BACK LIGHT
CN801
CN853
POWER SAVE SENSOR
VF-96 BOARD
IC851
DC/AC CONV.
R844
SENSOR IN A
D 4.9V
IC852
13.5V/12V REG
EVF 13.5V
EVF 12.0V
EVF 4.9V
D 3.2V
SENSOR VCC 3.2V
L853
L854
EVF UNREG
D 4.9V
SW EVF 15V
SW EVF 4.9V
D 3.2V
CN111
CN851
CN852
POWER SAVE
VF-95 BOARD
IC853-855, 857
(SEE PAGE 4-97)
CN901
HVDD
RGT
VVDD
CN902
LCD PANEL
IC901
D/A CONVERTER (EVF)
RGB DECODER
IC902
TIMING GENERATOR
IC904
(SEE PAGE 4-99)

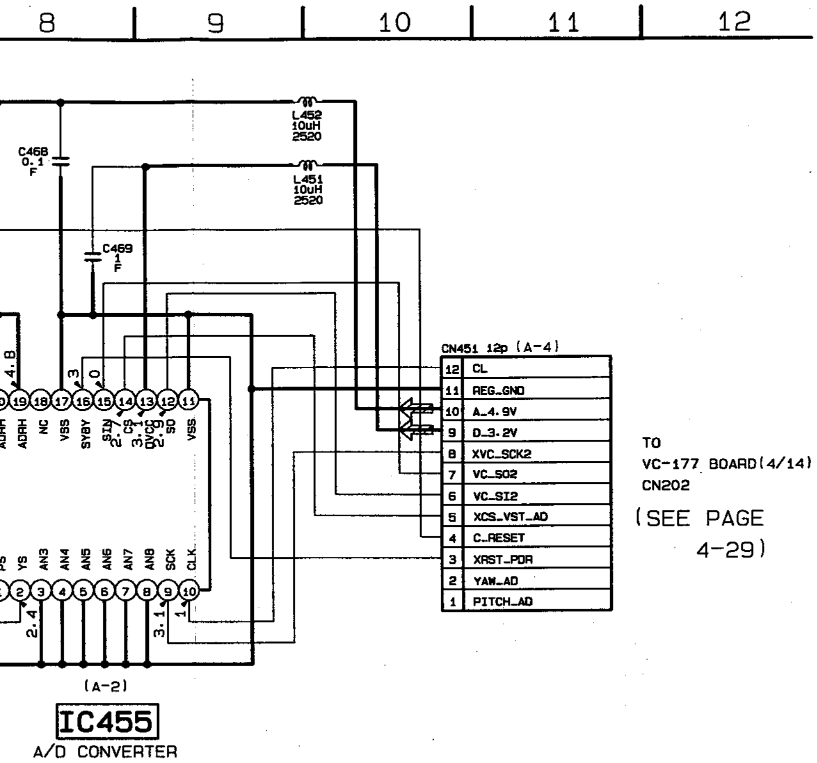

HI-39 BOARD
(SEE PAGE 4-69, 72, 75)
IC1954
EEPROM
INITIAL RESET, BACKUP VCC
Q1951-1955
CN502
D 3.2V
(SEE PAGE 4-79)
CF BLOCK
FOCUS DIAL
S101
POWER
VTR
OFF
CAMERA
XVTR MODE SW
STBY SW CF
Q505, 509
BL 4.9V
CN101
CN102
(SEE PAGE 4-79)
LC-52 BOARD
IC181
LCD DRIVER
LED
CN181
IC1952
MODE CONTROL
BACK UP VCC
Q503, 504
BATT SIG
XSHOE ON
VTR DD ON
EVF DD ON
CAM DD ON
XVTR MODE SW
XCAN STBY SW
LED ON
D 3.2V
CN151
LED
VTR FUNCTION SW ZOOM SW
FK-66 BOARD
(SEE PAGE 4-82)
STBY SW HI
STBY SW CF
STANDBY
ON
OFF
FP-457 (FLEXIBLE)
(SEE PAGE 4-76)
LANC DC
LANC
CN503

SE-51 (STEADY SHOT) SCHEMATIC DIAGRAM

— Ref No. SE-51 BOARD: 3,000 series —



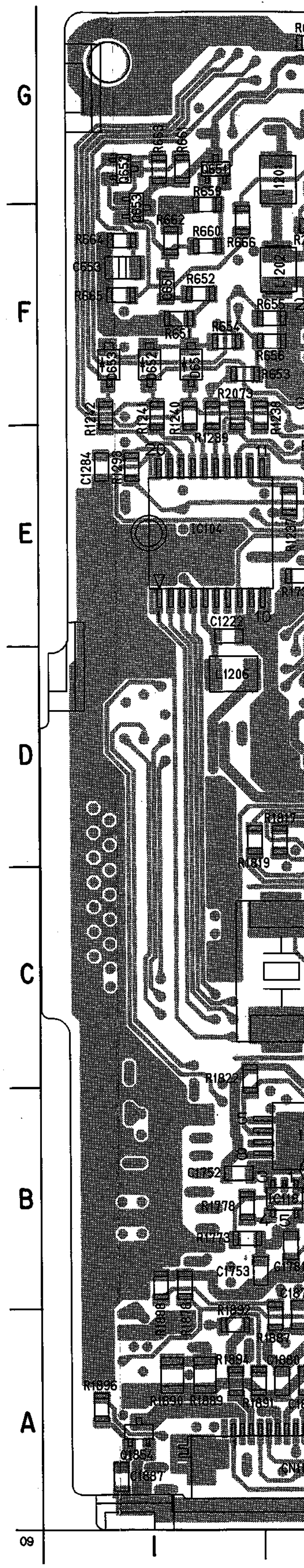
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SE-51 BOARD
no mark : CAMERA REC mode
(C-2)
IC453
SWITCH
IC453
TC4S66F
(D-4)
SE451
YAW
(A-4)
SE452
PITCH
(C-2)
IC451
BUFFER
IC451
TA75W01FU
(B-1)
IC452
AMP
IC452
NJM3403AV
(B-2)
IC454
SWITCH
IC454
TC4S66F
(A-2)
IC455
A/D CONVERTER
IC455
MB88102PFV-G-BND-ER
C451 22 4V TA A
C452 22 4V TA A
C453 0.1 B
C454 0.015 B
C455 0.1 B
C456 10 6.3V TA A
C457 0.015 B
C458 0.22 B 2012
C459 0.22 B 2012
C460 33 10V
C461 33 10V
C462 10 6.3V TA A
C467 0.33 B 2012
C468 0.1 F
C469 1 F
R451 22k
R452 22k
R453 22k
R454 22k
R455 22k
R456 22k
R457 33
R458 10k
R459 10k
R460 470k ±0.5%
R461 470k ±0.5%
R462 470k ±0.5%
R463 470k ±0.5%
R464 10k
R465 270k
R466 270k
R467 10k
R468 15k
R470 0
R472 0
L451 10uH 2520
L452 10uH 2520
GND
VCC
ADRH
NC
VSS
SYBY
SIN
CS
DVCC
SO
PS
YS
AN3
AN4
AN5
AN6
AN7
AN8
SCK
CLK
09


8
9
10
11
12
L452
10uH
2520
L451
10uH
2520
C468
0.1
F
C469
1
F
CN451 12p (A-4)
12 CL
11 REG_GND
10 A_4.9V
9 D_3.2V
8 XVC_SCK2
7 VC_SO2
6 VC_SI2
5 XCS_VST_AD
4 C_RESET
3 XRST_PDR
2 YAW_AD
1 PITCH_AD
TO
VC-177 BOARD(4/14)
CN202
(SEE PAGE
4-29)
4.8
3
0
2.7
3.1
2.9
ADRH
NC
VSS
SYBY
SIN
CS
DVCC
SO
VSS
YS
AN3
AN4
AN5
AN6
AN7
AN8
SCK
CLK
2.4
3.1
1
(A-2)
IC455
A/D CONVERTER

VC-177 (CAME

— Ref No. VC-177 B

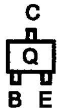
VC-177 BOARD (CO

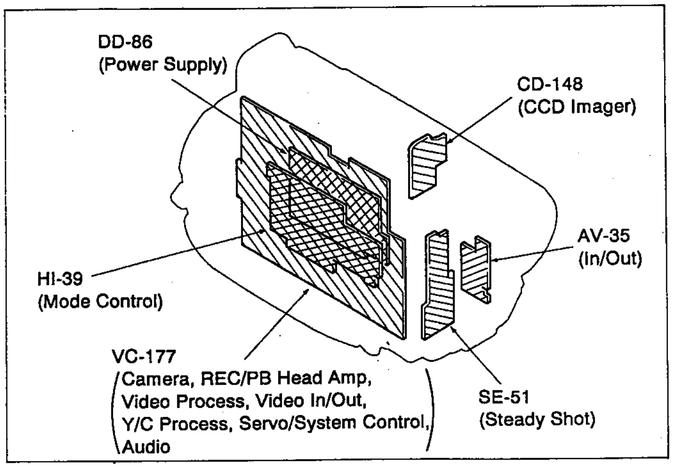


G
F
E
D
C
B
A
09
IC104
C1222
L1206
R1822
C1752
C1753
R1896
R1890
C1887

There are few cases that the part isn't mounted in this model is printed on this diagram.

- **For printed wiring boards.**
- This board is a six-layer print board. However, the patterns of layers 2, 3, 4 and 5 have not been included in the diagram.
- Chip transistor



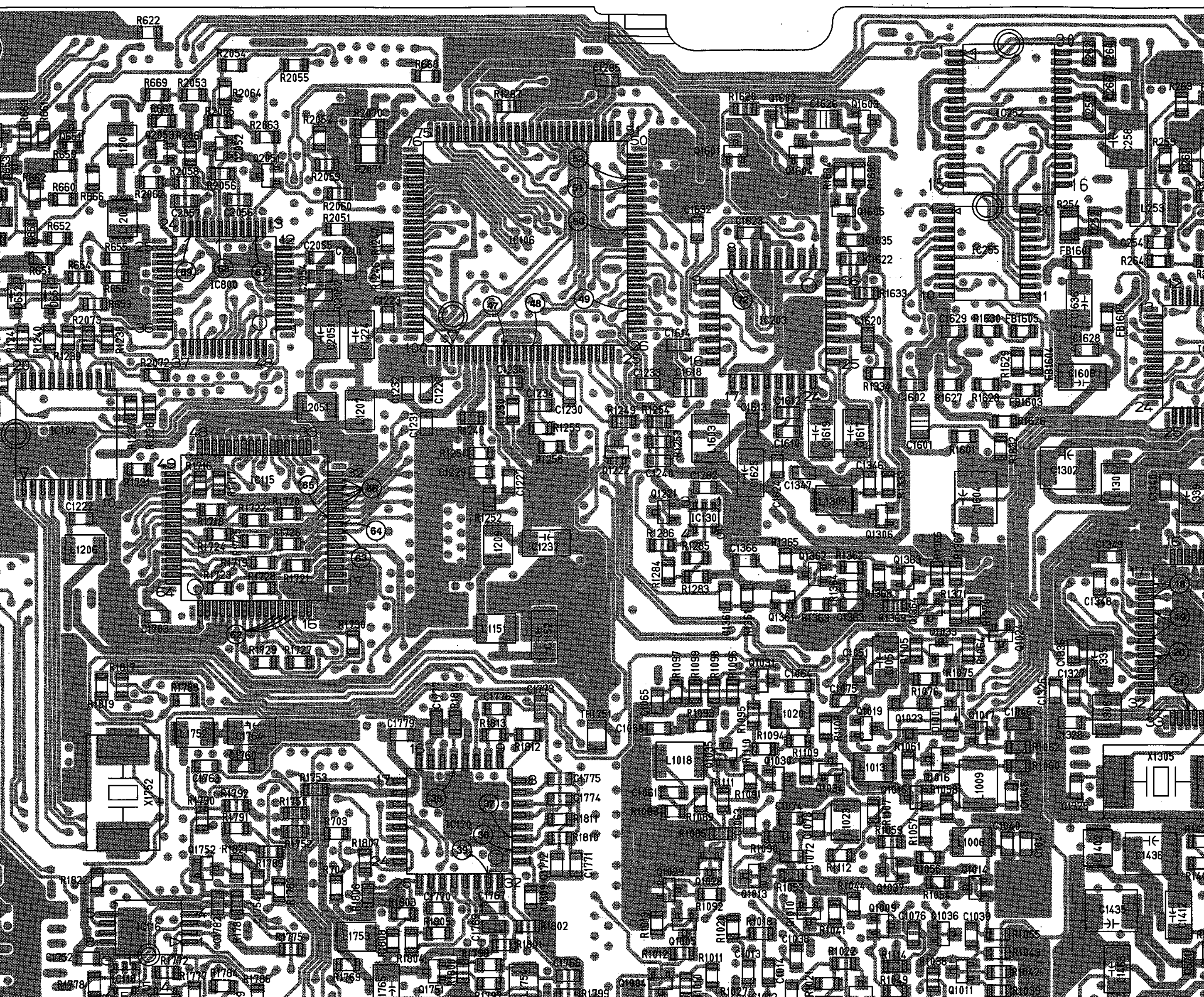


DD-86
(Power Supply)
CD-148
(CCD Imager)
AV-35
(In/Out)
HI-39
(Mode Control)
VC-177
Camera, REC/PB Head Amp, Video Process, Video In/Out, Y/C Process, Servo/System Control, Audio
SE-51
(Steady Shot)

VC-177 (CAMERA, REC/PB HEAD AMP, VIDEO PROCESS, VIDEO IN/OUT, Y/C PROCESS, SERVO/SYSTEM CONTROL, AUDIO) PR

— Ref No. VC-177 BOARD: 10,000 series —

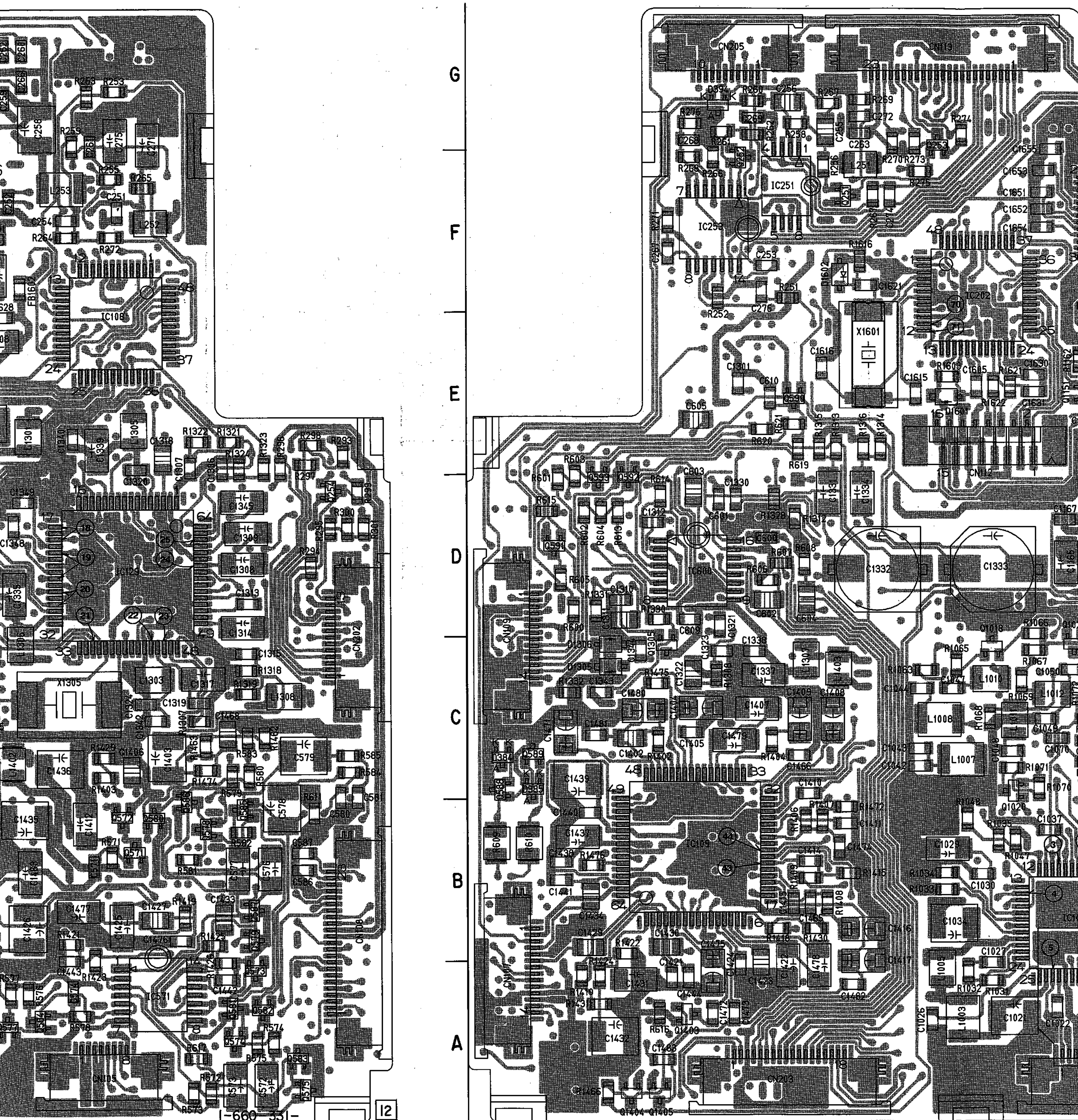
7 BOARD (COMPONENT SIDE)

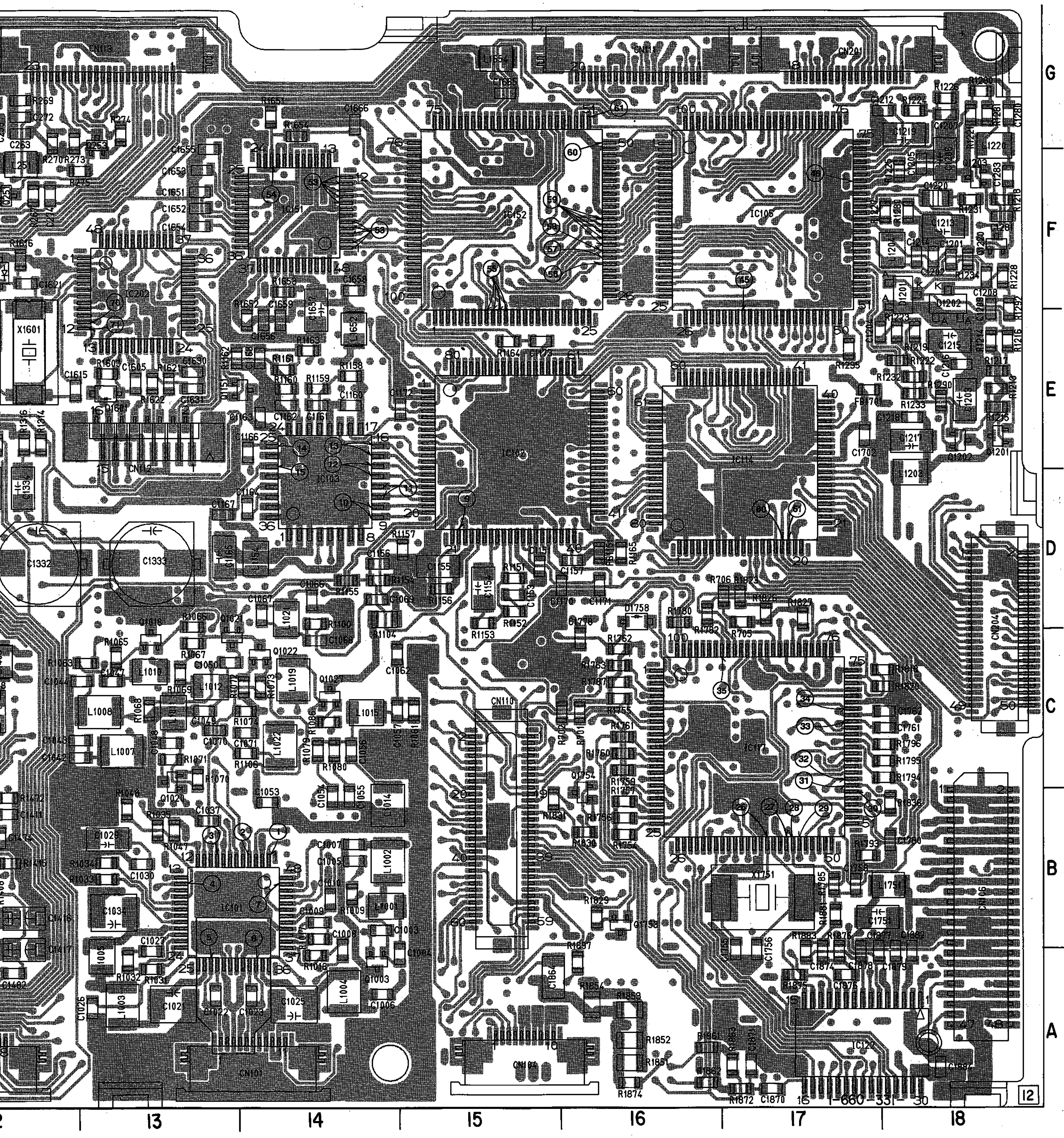


IC106
IC800
IC203
IC253
IC255
IC104
IC415
IC130
IC120
IC119
IC121
X1752
X1305
CN102
CN103
1
2
3
4
5
6
7

CESS, SERVO/SYSTEM CONTROL, AUDIO

VC-177 BOARD (CONDUCTOR SIDE)


G
F
E
D
C
B
A
7
8
9
10
11
12
13
CN205
IC251
IC253
IC202
X1601
IC108
X1305
C1332
C1333
L1008
L1007
CN203
1-660-351-
12


G
F
E
D
C
B
A
12
13
14
15
16
17
18
1-660-331-
12
CN113
CN111
CN201
CN112
CN110
CN101
CN102
CN104
CN106
IC151
IC152
IC105
IC202
IC103
IC102
IC114
IC117
IC101
IC122
X1601
X1751
C1332
C1333
L1008
L1007
L1002
L1004
L1003
L1019
L1022

VC-177 BOARD

C251	F-8
C252	F-7
C253	F-12
C254	F-7
C255	G-12
C256	G-12
C258	G-7
C259	G-7
C260	G-7
C261	G-7
C262	G-7
C263	G-12
C266	G-7
C267	F-11
C268	G-11
C269	G-12
C271	G-8
C274	F-12
C276	F-12
C574	A-7
C576	B-8
C577	B-8
C578	B-9
C579	C-9
C609	D-11
C610	E-12
C1002	B-5
C1003	B-14
C1004	A-15
C1005	B-14
C1006	A-14
C1007	B-14
C1008	A-14
C1009	B-14
C1010	B-14
C1011	B-5
C1012	B-5
C1013	B-5
C1014	B-5
C1018	B-6
C1019	B-5
C1020	A-6
C1021	A-13
C1022	A-13
C1023	A-14
C1024	A-5
C1025	A-14
C1026	A-13
C1027	A-13
C1029	B-13
C1030	B-13
C1034	B-13
C1035	A-6
C1036	B-6
C1038	B-5
C1039	B-6
C1040	C-6
C1042	C-13
C1044	C-13
C1045	C-6
C1046	C-7
C1047	C-13
C1048	C-13
C1049	C-13
C1050	C-13
C1051	D-6
C1052	D-6
C1053	B-14
C1054	B-14
C1055	B-14
C1056	C-14
C1057	C-15
C1058	C-5
C1061	C-5
C1062	C-15
C1063	C-5
C1064	D-5
C1066	D-14
C1067	D-14
C1068	C-14
C1069	D-14
C1070	C-13
C1071	C-14
C1072	C-5
C1075	D-6
C1076	B-6
C1151	D-15
C1152	D-4
C1153	D-15
C1154	D-15
C1156	D-14
C1157	D-16
C1160	E-14
C1161	E-14
C1162	E-14
C1163	E-14
C1164	D-14
C1165	D-13
C1166	E-14
C1167	D-13
C1168	E-14
C1173	E-15
C1201	F-18
C1203	E-18
C1204	E-17
C1205	F-18
C1206	F-18
C1207	G-18
C1208	F-18
C1208	F-18
C1209	E-18
C1210	F-3
C1212	G-18
C1213	F-18
C1215	E-18
C1216	E-18
C1217	E-18
C1218	E-18
C1219	G-18
C1220	F-18
C1222	E-1
C1223	F-3
C1224	F-3
C1227	E-4
C1228	E-3
C1229	E-4
C1230	E-4
C1231	E-3
C1232	E-3
C1233	E-4
C1234	E-4
C1236	E-4
C1237	D-4
C1240	E-5
C1280	G-18
C1282	E-5
C1283	F-18
C1284	E-1
C1285	G-4
C1301	E-11
C1302	E-7
C1306	E-8
C1307	E-8
C1308	D-8
C1309	D-8
C1310	D-11
C1311	D-11
C1312	D-11
C1313	D-8
C1314	D-8
C1315	C-8
C1317	C-8
C1318	E-8
C1319	C-8
C1320	E-8
C1321	D-11
C1322	C-2
C1323	C-11
C1324	C-8
C1326	D-7
C1327	D-7
C1328	C-7
C1330	D-11
C1331	D-12
C1332	D-12
C1333	D-13
C1334	D-12
C1335	D-7
C1336	D-7
C1337	C-12
C1338	C-2
C1339	E-7
C1340	E-7
C1342	C-8
C1343	C-2
C1344	C-2
C1345	D-8
C1346	E-6
C1347	E-5
C1361	D-5
C1363	D-6
C1366	D-5
C1402	C-2
C1403	C-8
C1404	C-2
C1405	C-2
C1406	C-8
C1407	C-12
C1408	C-12
C1409	C-12
C1410	C-12
C1411	B-12
C1412	B-7
C1414	B-12
C1415	B-12
C1416	B-12
C1417	A-12
C1421	A-11
C1422	A-12
C1423	A-12
C1424	A-11
C1425	B-8
C1426	B-7
C1427	B-8
C1429	B-10
C1430	B-11
C1431	A-11
C1432	A-11
C1433	B-8
C1434	B-10
C1435	B-7
C1436	C-7
C1437	B-10
C1439	C-1
C1441	B-10
C1444	A-11
C1471	C-1
C1472	A-11
C1473	A-11
C1474	B-12
C1475	A-11
C1601	E-6
C1602	E-6
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C1608	E-7
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C1615	E-12
C1616	E-12
C1617	E-6
C1618	E-5
C1619	E-5
C1620	F-6
C1621	F-12
C1622	F-6
C1623	F-5
C1624	E-5
C1625	E-5
C1626	G-5
C1628	E-7
C1629	F-6
C1630	E-13
C1631	E-13
C1632	F-5
C1635	F-6
C1654	F-13
C1655	F-13
C1656	E-14
C1657	E-14
C1658	F-14
C1659	E-14
C1665	G-15
C1702	E-17
C1703	D-2
C1751	B-17
C1752	B-1
C1753	B-1
C1754	C-2
C1755	A-17
C1756	A-17
C1757	B-2
C1758	B-17
C1760	C-2
C1761	C-18
C1762	C-18
C1763	C-2
C1764	C-2
C1765	B-3
C1767	B-4
C1768	B-4
C1769	B-4
C1770	B-3
C1771	C-4
C1772	C-4
C1773	C-4
C1774	C-4
C1775	C-4
C1776	C-4
C1777	C-3
C1778	C-16
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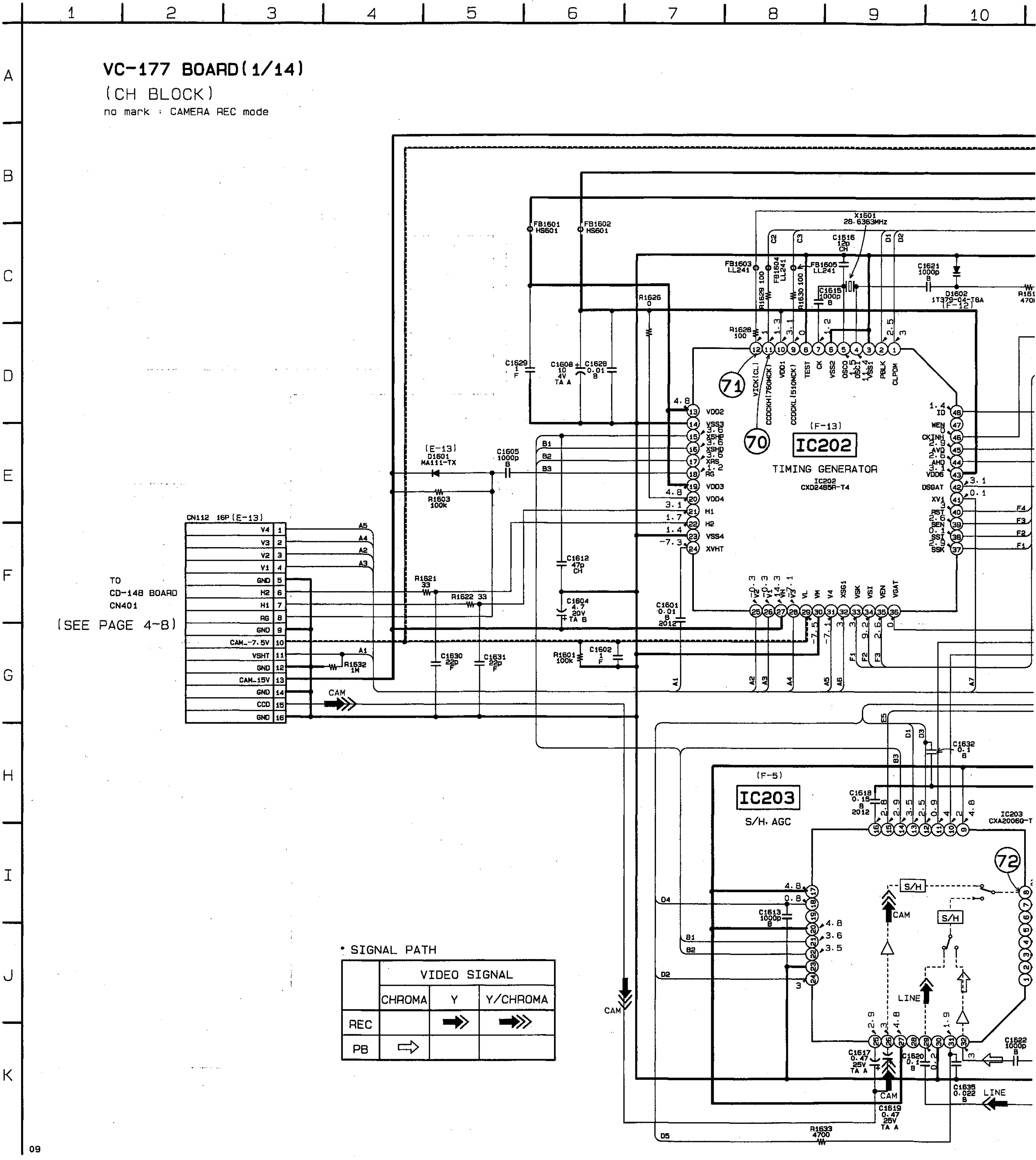
C1853	A-3
C1854	B-3
C1855	A-3
C1856	B-3
C1857	A-3
C1858	A-4
C1859	A-4
C1860	A-4
C1861	A-4
C1862	B-4
C1863	B-4
C1864	A-15
C1865	B-4
C1866	B-4
C1867	B-4
C1868	A-2
C1869	B-3
C1870	A-17
C1871	A-17
C1872	A-2
C1873	A-2
C1874	A-17
C1875	A-2
C1876	A-17
C1877	A-17
C1878	A-17
C1879	A-18
C1880	A-2
C1882	A-18
C1884	A-18
C1886	A-4
C1887	A-1
C1888	A-2
C2051	F-3
C2052	F-3
C2054	F-3
C2055	F-3
C2056	F-2
C2057	F-2
CN101	A-14
CN102	A-2
CN103	A-3
CN104	A-15
CN105	A-7
CN106	B-18
CN107	A-10
CN108	B-9
CN109	D-10
CN110	C-15
CN111	G-16
CN112	E-13
CN113	G-13
CN202	C-9
CN205	G-11
D384	C-1
D385	C-1
D394	G-11
D1201	F-18
D1202	F-18
D1305	C-2
D1306	C-2
D1601	E-13
D1602	F-12
D1758	D-16
FB1151	D-16
FB1601	F-7
FB1602	F-7
FB1603	E-7
FB1604	E-7
FB1605	F-7
FB1701	E-17
IC101	B-13
IC102	E-15
IC103	D-14
IC104	E-1
IC105	F-17
IC106	F-4
IC108	E-8
IC109	B-11
IC114	E-17
IC115	E-2
IC116	B-2
IC117	C-17
IC118	B-2
IC119	B-2
IC120	C-3
IC121	A-4
IC122	A-17
IC129	D-8
IC130	E-5
IC151	F-14
IC152	F-15
IC202	F-13
IC203	F-5
IC251	F-12
IC252	G-6
IC253	F-11
IC255	F-6
IC800	F-2
L251	F-12
L252	F-8
L253	F-7
L1001	B-14
L1002	B-14
L1003	A-13
L1004	A-14
L1005	A-13
L1006	C-6
L1007	C-13
L1008	C-13
L1009	C-6
L1010	C-13
L1011	C-13
L1012	C-13
L1013	C-6
L1014	B-14
L1015	C-14
L1018	C-5
L1019	C-14
L1021	D-14
L1022	C-14
L1151	D-4
L1154	D-14
L1201	G-2
L1202	F-2
L1203	D-18
L1204	F-18
L1206	D-1
L1207	E-3
L1209	D-4
L1220	G-18
L1301	E-7
L1303	C-8
L1305	E-8
L1306	C-7
L1307	C-12
L1308	C-9
L1309	E-5
L1402	C-7
L1403	C-12
L1603	E-5
L1652	E-14
L1654	G-15
L1751	B-18
L1752	C-2
L1753	B-3
L1754	B-4
L2051	E-3
Q251	F-12
Q252	F-11
Q253	G-13
Q254	D-9
Q572	B-8
Q578	B-8
Q579	B-8
Q580	B-8
Q585	B-8
Q586	B-8
Q587	B-8
Q588	C-1
Q589	C-1
Q590	E-12
Q591	D-10
Q592	D-11
Q593	D-11
Q1001	A-5
Q1002	B-5
Q1003	A-14
Q1004	B-5
Q1005	B-5
Q1006	B-5
Q1009	B-6
Q1010	B-5
Q1013	C-5
Q1014	C-6
Q1015	C-6
Q1016	C-6
Q1017	C-6
Q1018	C-13
Q1019	C-6
Q1021	C-13
Q1022	C-14
Q1023	C-6
Q1024	D-6
Q1027	C-14
Q1030	C-5
Q1031	D-5
Q1033	D-6
Q1034	C-5
Q1035	C-5
Q1036	B-6
Q1037	C-6
Q1151	E-14
Q1201	E-18
Q1202	E-18
Q1203	F-18
Q1220	F-18
Q1221	E-5
Q1222	E-4
Q1305	C-11
Q1306	E-6
Q1361	D-5
Q1362	D-5
Q1363	D-6
Q1364	D-6
Q1403	A-11
Q1404	A-11
Q1405	A-11
Q1601	G-5
Q1602	G-5
Q1603	G-6
Q1604	G-5
Q1751	B-3
Q1851	B-2
Q1852	A-2
Q1853	A-2
Q1854	A-1
Q2051	F-2
Q2052	G-2
Q2053	G-2
R251	F-12
R252	F-11
R253	G-8
R254	F-7
R255	F-8
R256	F-12
R257	G-12
R258	G-12
R259	G-7
R260	G-12
R261	G-11
R262	G-12
R263	G-7
R264	F-7
R265	F-8
R266	F-11
R267	F-12
R268	F-11
R269	G-12
R270	G-12
R271	F-11
R272	F-8
R273	G-12
R274	G-13
R275	F-13
R276	G-11
R294	D-9
R295	D-9
R298	E-9
R300	D-9
R579	C-8
R580	C-8
R581	B-8
R582	B-8
R583	C-8
R584	C-9
R585	C-9
R600	D-10
R601	D-10
R602	D-10
R603	D-10
R604	D-11
R605	D-10
R609	B-10
R610	B-10
R611	B-9
R613	D-11
R614	D-11
R615	D-10
R616	A-11
R617	A-8
R619	E-12
R620	E-12
R621	E-12
R622	G-2
R655	F-2
R656	F-2
R702	C-16
R703	C-3
R705	D-16
R706	D-16
R1001	A-5
R1002	A-5
R1003	A-5
R1004	B-5
R1005	A-5
R1006	B-5
R1007	B-5
R1008	B-5
R1009	B-14
R1010	B-5
R1011	B-5
R1012	B-5
R1013	B-5
R1014	A-5
R1016	A-14
R1017	B-14
R1018	B-5
R1020	B-5
R1021	B-5
R1023	B-6
R1024	B-5
R1025	A-5
R1026	A-5
R1027	B-5
R1029	A-6
R1030	A-6
R1031	A-13
R1032	A-13
R1033	B-13
R1034	B-13
R1035	B-13
R1038	B-6
R1041	B-5
R1044	B-6
R1049	B-6
R1053	C-5
R1054	C-6
R1055	B-6
R1056	C-6
R1057	C-6
R1058	C-6
R1059	C-6
R1060	C-7
R1061	C-6
R1062	C-7
R1063	C-13
R1064	D-6
R1065	C-13
R1066	D-13
R1067	C-13
R1068	C-13
R1069	C-13
R1070	C-13
R1072	C-14
R1073	C-14
R1074	C-14
R1075	D-6
R1076	D-6
R1079	C-14
R1080	C-14
R1081	C-15
R1085	C-14
R1086	C-14
R1088	C-5
R1090	C-5
R1091	C-5
R1093	C-5
R1094	C-5
R1095	C-5
R1096	D-5
R1097	D-5
R1098	D-5
R1099	D-5
R1100	D-14
R1104	D-14
R1105	D-6
R1106	C-14
R1108	C-5
R1109	C-5
R1110	C-5
R1111	C-5
R1112	C-5
R1113	B-5
R1114	B-6
R1151	D-15
R1152	D-15
R1153	D-15
R1154	D-14
R1155	D-14
R1156	D-15
R1157	D-15
R1159	E-14
R1160	E-14
R1162	E-14
R1163	E-14
R1164	E-15
R1165	D-16
R1213	E-18
R1215	E-18
R1216	E-18
R1217	E-18
R1218	F-18
R1219	E-18
R1221	G-18
R1222	E-18
R1223	E-18
R1224	G-18
R1225	F-18
R1226	G-18
R1227	F-18
R1228	F-18
R1230	F-18
R1231	F-18
R1232	E-18
R1233	E-18
R1234	F-18
R1235	E-17
R1236	E-2
R1237	E-2
R1238	F-1
R1239	F-1
R1240	F-1
R1241	F-1
R1242	F-1
R1246	F-3
R1247	F-3
R1248	E-3
R1249	E-4
R1250	E-4
R1251	E-4
R1252	E-4
R1253	E-5
R1254	E-5
R1255	E-4
R1256	E-4
R1280	G-18
R1281	G-18
R1283	D-5
R1284	D-5
R1285	D-5
R1286	D-5
R1290	E-18
R1292	E-18
R1293	E-1
R1307	C-8
R1308	C-2
R1312	D-12
R1313	E-12
R1314	E-12
R1315	E-12
R1316	E-12
R1318	C-8
R1319	C-8
R1321	E-8
R1322	E-8
R1323	E-8
R1324	E-8
R1330	D-11
R1331	D-11
R1332	C-1
R1333	E-6
R1334	E-6
R1361	D-5
R1362	D-6
R1363	D-5
R1364	D-6
R1365	D-5
R1366	D-6
R1367	D-6
R1368	D-6
R1370	D-6
R1371	D-6
R1402	C-2
R1403	C-7
R1404	C-12
R1406	B-12
R1407	B-12
R1408	B-12
R1408	B-13
R1409	B-12
R1410	A-10
R1415	B-12
R1418	B-12
R1419	B-8
R1421	B-7
R1422	B-11
R1423	B-7
R1424	A-11
R1425	B-8
R1426	A-8
R1429	C-7
R1430	B-12
R1431	A-11
R1460	B-7
R1463	C-8
R1466	A-11
R1472	B-12
R1476	B-11
R1601	E-6
R1603	E-13
R1616	F-12
R1620	G-5
R1621	E-13
R1622	E-13
R1626	E-6
R1628	E-6
R1629	E-6
R1630	F-6
R1632	E-6
R1633	F-6
R1651	G-14
R1653	F-14
R1716	E-2
R1717	E-2
R1718	E-2
R1719	D-2
R1720	E-2
R1721	D-3
R1722	E-2
R1723	D-2
R1724	D-2
R1725	D-2
R1726	D-2
R1727	D-3
R1728	D-2
R1729	D-2
R1730	D-3
R1751	C-3
R1752	C-3
R1753	C-3
R1759	C-16
R1760	C-16
R1761	C-16
R1762	C-16
R1763	C-16
R1772	B-2
R1773	B-1
R1775	B-2
R1780	D-16
R1781	B-2
R1782	D-16
R1783	C-2
R1784	B-2
R1785	B-17
R1786	B-2
R1787	C-16
R1789	C-2
R1790	C-2
R1791	C-2
R1792	C-2
R1793	B-17
R1794	C-18
R1795	C-18
R1796	C-18
R1798	B-4
R1801	B-4
R1803	B-3
R1804	B-3
R1805	B-3
R1806	B-3
R1807	C-3
R1808	B-3
R1809	B-4
R1810	C-4
R1811	C-4
R1812	C-4
R1813	C-4
R1814	C-3
R1817	D-2
R1818	C-18
R1820	C-18
R1821	C-2
R1822	C-1
R1823	D-16
R1826	D-16
R1827	D-16
R1836	B-18
R1851	A-16
R1852	A-16
R1853	A-16
R1855	A-3
R1856	A-3
R1857	A-3
R1859	B-4
R1860	B-4
R1861	A-16
R1862	A-16
R1863	A-17
R1865	A-3
R1867	A-3
R1868	A-3
R1869	A-2
R1872	A-17
R1873	A-2
R1874	A-16
R1875	A-17
R1876	A-17
R1877	B-3
R1878	B-1
R1880	B-3
R1881	B-17
R1882	B-2
R1883	A-17
R1884	B-2
R1887	A-2
R1888	B-1
R1889	A-1
R1890	A-1
R1891	A-1
R1892	A-1
R1893	A-2
R1894	A-1
R1895	B-2
R1896	A-1
R1897	A-16
R2051	F-3
R2052	G-3
R2053	G-2
R2054	G-2
R2055	G-3
R2056	F-2
R2058	F-2
R2059	F-3
R2060	F-3
R2061	G-2
R2062	F-2
R2063	G-2
R2064	G-2
R2065	G-2
R2070	G-3
R2071	G-3
R2072	E-2
R2073	F-1
TH1751	C-4
X1305	C-7
X1601	E-12
X1751	B-17
X1752	C-2

VC-177 (CAMERA (1)) SCHEMATIC DIAGRAM

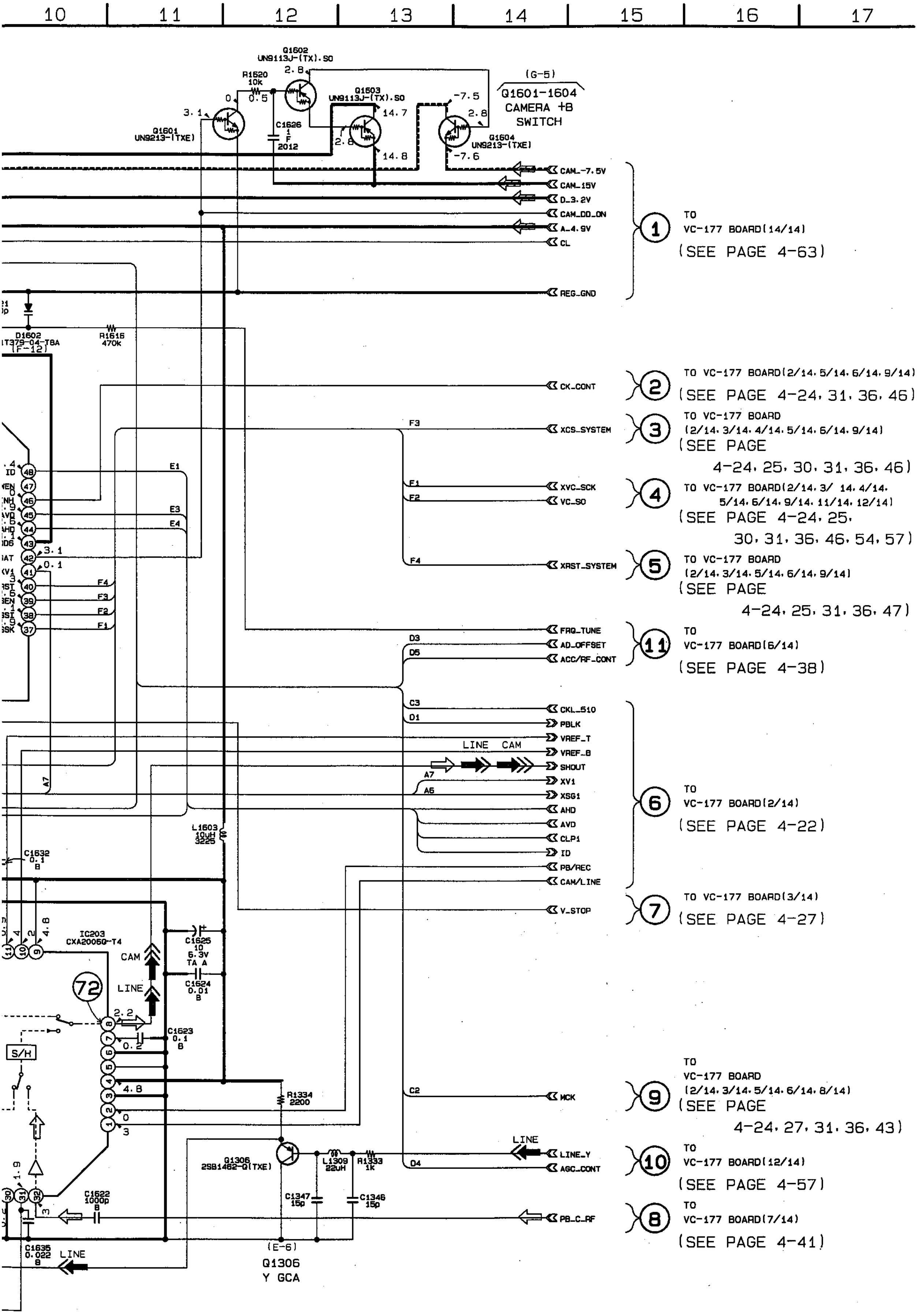
— Ref No. VC-177 BOARD: 10,000 series —

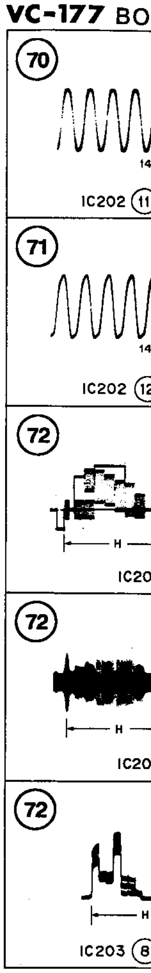


VC-177 BOARD(1/14)
(CH BLOCK)
no mark : CAMERA REC mode
IC202
TIMING GENERATOR
IC202 CXD2485R-T4
(F-13)
IC203
S/H, AGC
IC203 CXA2006Q-T
(F-5)
X1601 28.6363MHz
CN112 16P (E-13)
TO CD-148 BOARD CN401
(SEE PAGE 4-8)
V4
V3
V2
V1
GND
H2
H1
RG
GND
CAM_-7.5V
VSHT
GND
CAM_15V
GND
CCD
GND
D1601 MA111-TX
R1603 100k
C1605 1000p B
R1621 33
R1622 33
R1632 1M
C1630 22p F
C1631 22p F
C1612 47p CH
C1604 4.7 20V TA B
R1601 100k
C1602 1 F
C1601 0.01 B 2012
FB1601 HS601
FB1602 HS601
C1629 1 F
C1608 10 4V TA A
C1628 0.01 B
R1626 0
R1628 100
R1629 100
R1630 100
FB1603 LL241
FB1604 LL241
FB1605 LL241
C1616 120 CH
C1615 1000p B
C1621 1000p B
D1602 1T379-04-T8A (F-12)
C1632 0.1 B
C1618 0.15 B 2012
C1613 1000p B
C1617 0.47 25V TA A
C1620 0.1 B
C1619 0.47 25V TA A
C1635 0.022 B
C1622 1000p B
R1633 4700
S/H
CAM
LINE
70
71
72

• SIGNAL PATH

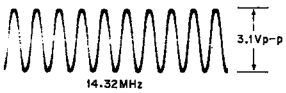
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡》	➡》
PB	⇨		


10
11
12
13
14
15
16
17
Q1602
UN9113J-(TX).SO
R1620
10k
Q1603
UN9113J-(TX).SO
Q1601
UN9213-(TXE)
C1626
1
F
2012
Q1604
UN9213-(TXE)
(G-5)
Q1601-1604
CAMERA +B
SWITCH
CAM_-7.5V
CAM_15V
D_3.2V
CAM_DD_ON
A_4.9V
CL
REG_GND
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-63)
D1602
1T379-04-TBA
(F-12)
R1616
470k
CK_CONT
TO VC-177 BOARD(2/14.5/14.6/14.9/14)
(SEE PAGE 4-24,31,36,46)
XCS_SYSTEM
TO VC-177 BOARD
(2/14.3/14.4/14.5/14.6/14.9/14)
(SEE PAGE
4-24,25,30,31,36,46)
XVC_SCK
VC_SO
TO VC-177 BOARD(2/14.3/ 14.4/14.
5/14.6/14.9/14.11/14.12/14)
(SEE PAGE 4-24,25,
30,31,36,46,54,57)
XRST_SYSTEM
TO VC-177 BOARD
(2/14.3/14.5/14.6/14.9/14)
(SEE PAGE
4-24,25,31,36,47)
FRQ_TUNE
AD_OFFSET
ACC/RF_CONT
TO
VC-177 BOARD(6/14)
(SEE PAGE 4-38)
CKL_510
PBLK
VREF_T
VREF_B
SHOUT
XV1
XSG1
AHD
AVD
CLP1
ID
PB/REC
CAM/LINE
LINE
CAM
TO
VC-177 BOARD(2/14)
(SEE PAGE 4-22)
V_STOP
TO VC-177 BOARD(3/14)
(SEE PAGE 4-27)
L1603
10uH
3225
C1632
0.1
B
IC203
CXA2005Q-T4
C1625
10
6.3V
TA A
C1624
0.01
B
C1623
0.1
B
S/H
R1334
2200
MCK
TO
VC-177 BOARD
(2/14.3/14.5/14.6/14.8/14)
(SEE PAGE
4-24,27,31,36,43)
Q1306
2SB1462-Q(TXE)
L1309
22uH
R1333
1k
LINE_Y
AGC_CONT
TO
VC-177 BOARD(12/14)
(SEE PAGE 4-57)
C1622
1000p
B
C1347
15p
C1346
15p
PB_C_RF
TO
VC-177 BOARD(7/14)
(SEE PAGE 4-41)
C1635
0.022
B
(E-6)
Q1306
Y GCA


VC-177 BO
70
IC202 11
71
IC202 12
72
H
IC20
72
H
IC20
72
H
IC203 8

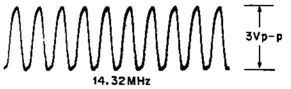
VC-177 BOARD (CH BLOCK)

(70)



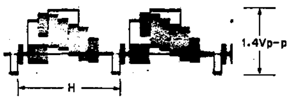
IC202 ⑪ REC/PB

(71)



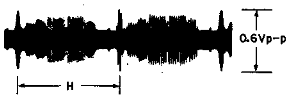
IC202 ⑫ REC/PB

(72)



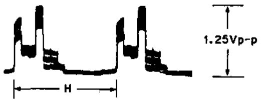
IC203 ⑧ REC

(72)



IC203 ⑧ PB

(72)



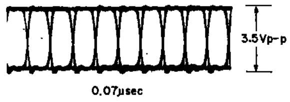
IC203 ⑧ CAMERA REC

VC-177 (CAMERA (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

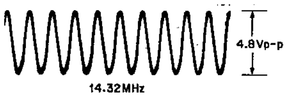
VC-177 BOARD (CA BLOCK)

(53)



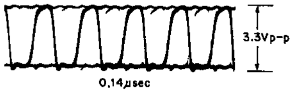
IC151 ①–⑤,⑧–⑫ CAMERA REC

(54)



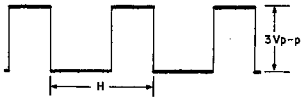
IC151 ㉒ CAMERA REC

(55)



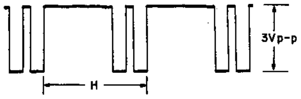
IC152 ⑨—⑫ CAMERA REC

(56)



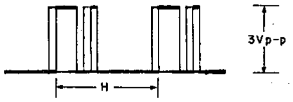
IC152 ㉛ CAMERA REC

(57)



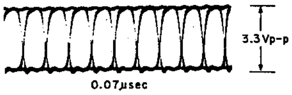
IC152 ㉜ CAMERA REC

(58)



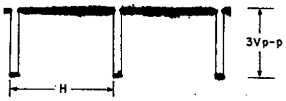
IC152 ㉝ CAMERA REC

(59)



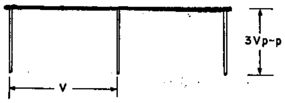
IC152 ㉞—㊳ CAMERA REC

(60)

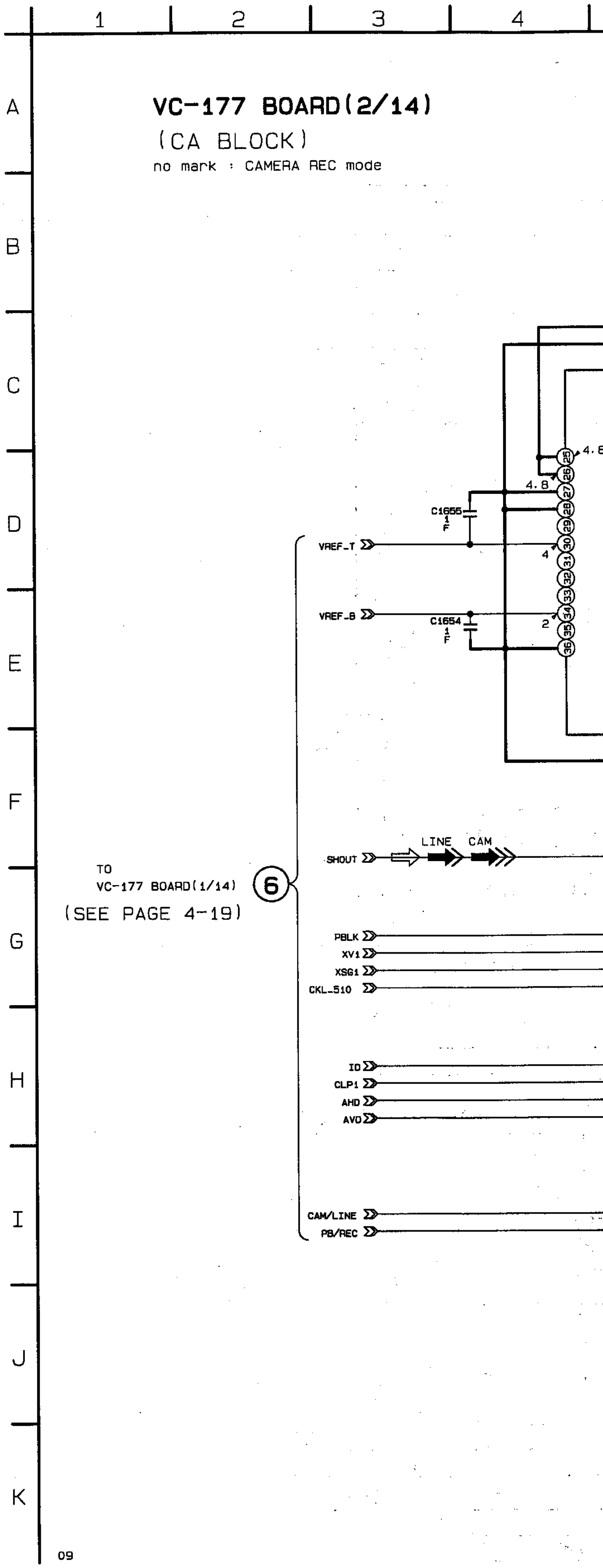


IC152 ㊿ CAMERA REC

(61)

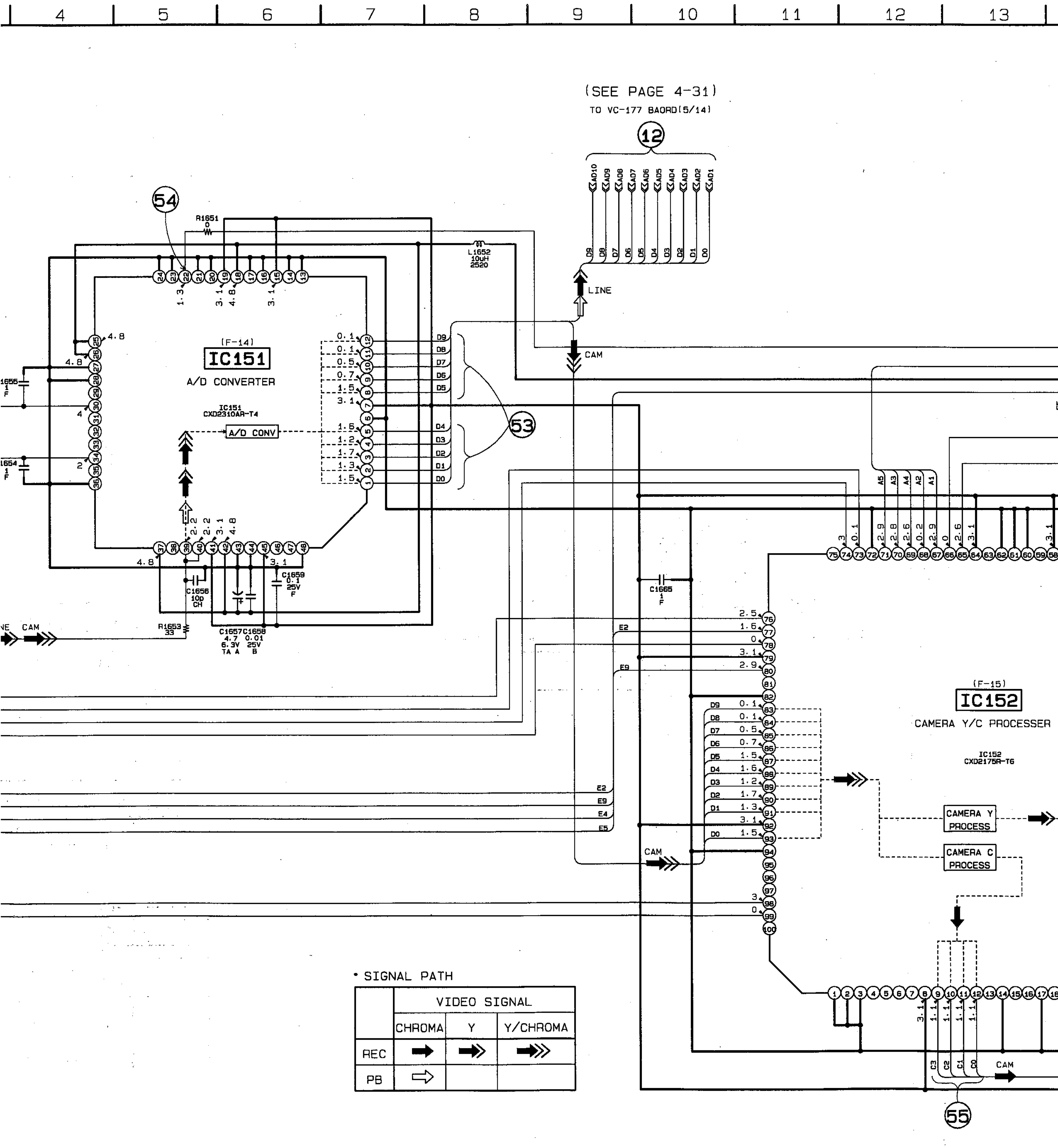


IC152 (51) CAMERA REC


1
2
3
4
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(2/14)
(CA BLOCK)
no mark : CAMERA REC mode
4.8
4.8
C1655 1 F
VREF_T
4
VREF_B
C1654 1 F
2
25
26
27
28
29
30
31
32
33
34
35
36
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)
6
SHOUT
LINE
CAM
PBLK
XV1
XSG1
CKL_510
ID
CLP1
AHD
AVD
CAM/LINE
PB/REC
09

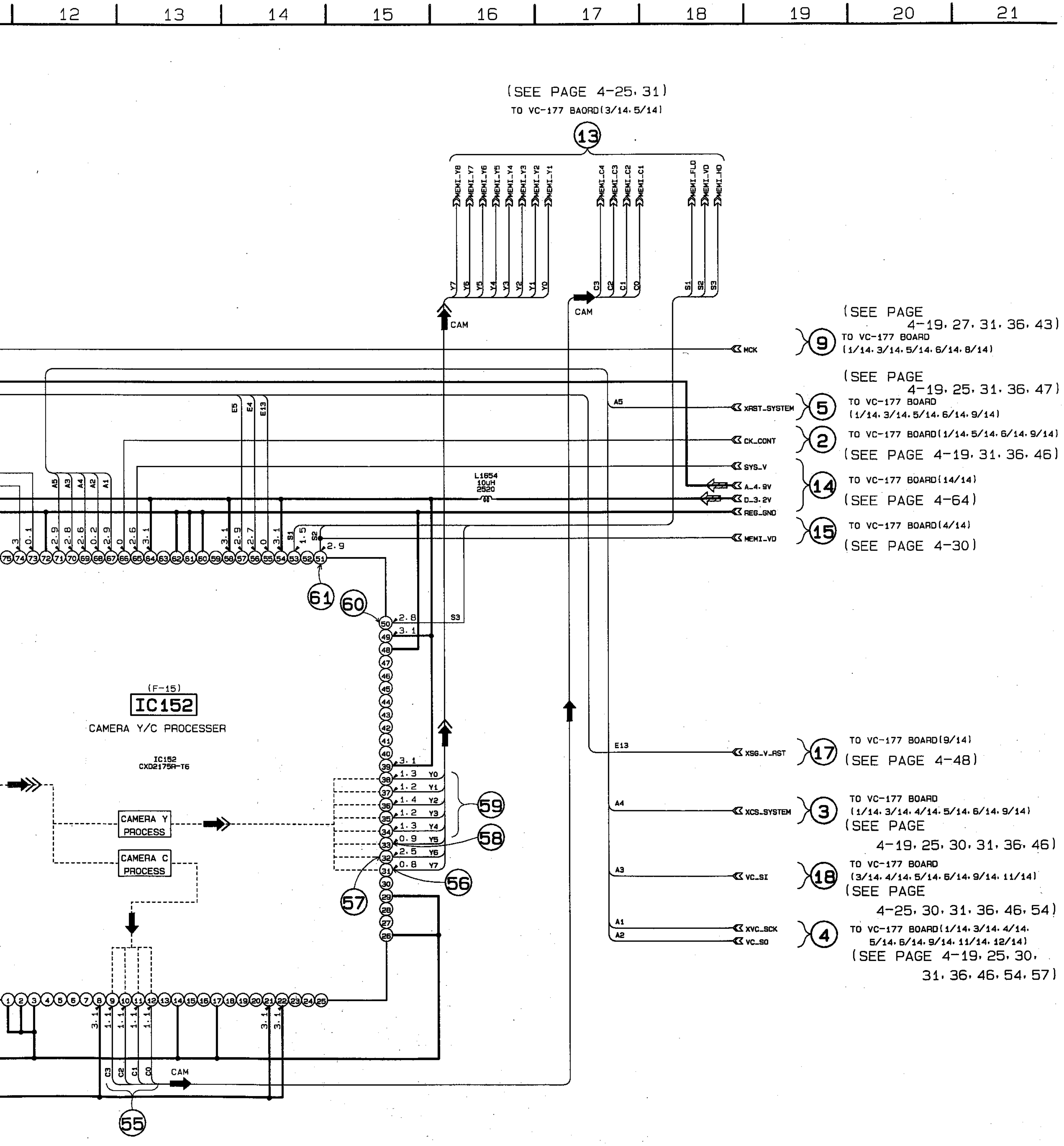
M

• Refer to page 4 – 13 for Printed Wiring Board.


4
5
6
7
8
9
10
11
12
13
(SEE PAGE 4-31)
TO VC-177 BAORD(5/14)
12
AD10 AD9 AD8 AD7 AD6 AD5 AD4 AD3 AD2 AD1
D9 D8 D7 D6 D5 D4 D3 D2 D1 D0
LINE
CAM
54
R1651 0
L1652 10uH 2520
(F-14)
IC151
A/D CONVERTER
IC151 CXD2310AR-T4
A/D CONV
53
C1655 1 F
C1654 1 F
C1656 10p CH
C1657 4.7 6.3V TA A
C1658 0.01 25V B
C1659 0.1 25V F
R1653 33
C1665 1 F
E2
E9
E4
E5
(F-15)
IC152
CAMERA Y/C PROCESSER
IC152 CXD2175R-T6
CAMERA Y PROCESS
CAMERA C PROCESS
A5 A3 A4 A2 A1
C3 C2 C1 C0
CAM
55

• SIGNAL PATH

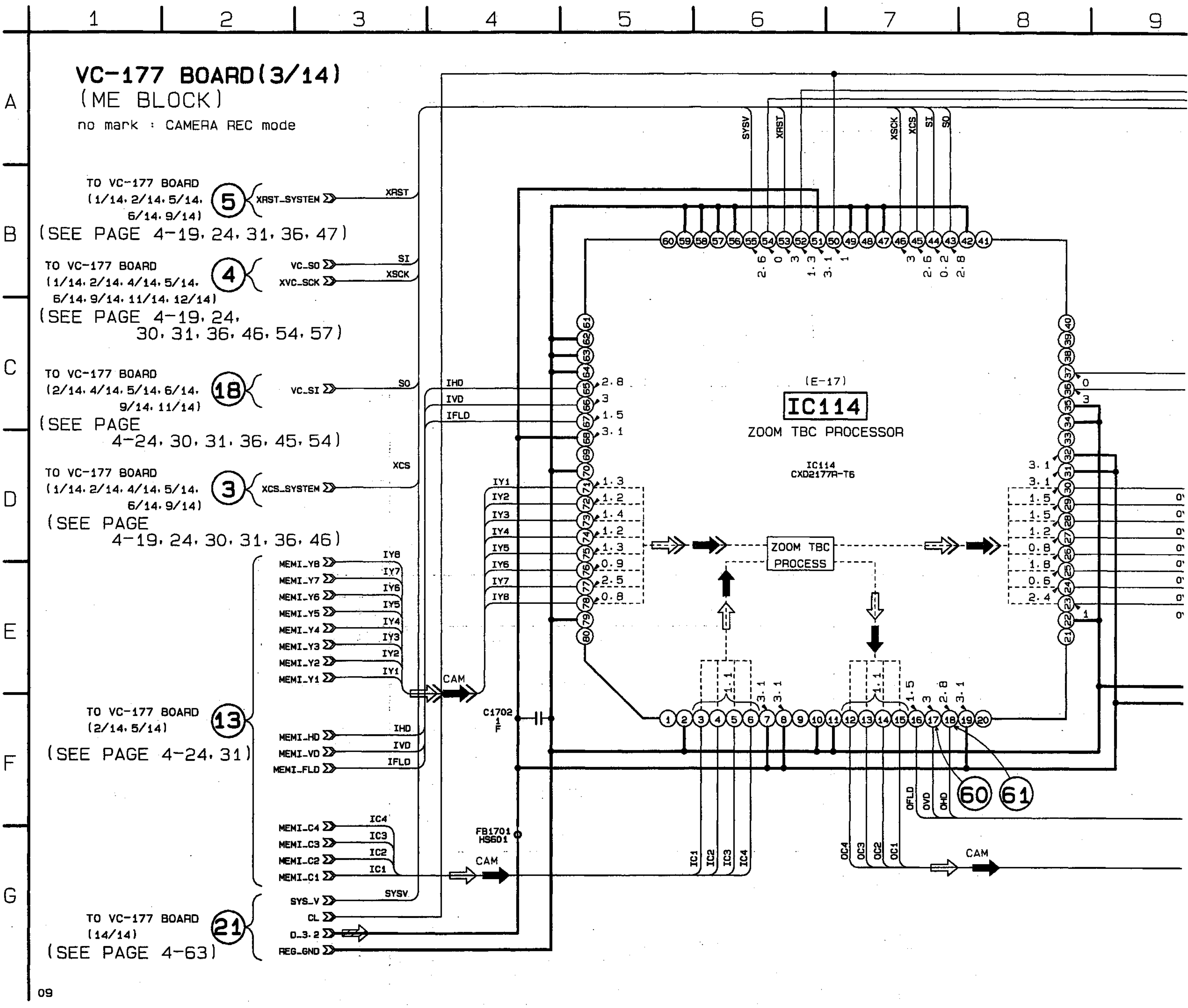
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡》	➡》》
PB	⇨		

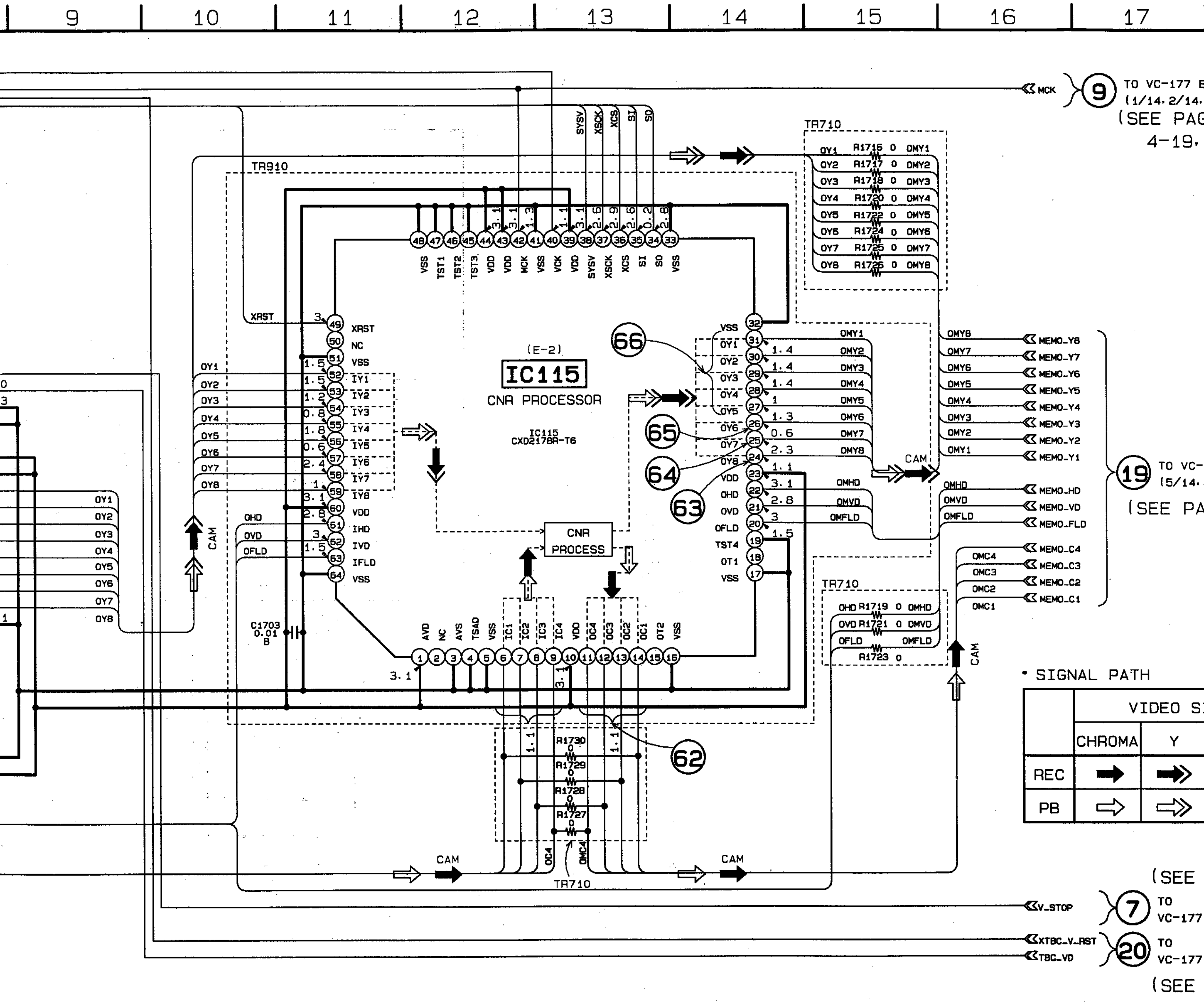

12
13
14
15
16
17
18
19
20
21
(SEE PAGE 4-25, 31)
TO VC-177 BAORD(3/14, 5/14)
13
MEMI_Y8
MEMI_Y7
MEMI_Y6
MEMI_Y5
MEMI_Y4
MEMI_Y3
MEMI_Y2
MEMI_Y1
MEMI_C4
MEMI_C3
MEMI_C2
MEMI_C1
MEMI_FLD
MEMI_VD
MEMI_HD
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
C3
C2
C1
C0
S1
S2
S3
CAM
CAM
(SEE PAGE 4-19, 27, 31, 36, 43)
9
TO VC-177 BOARD (1/14, 3/14, 5/14, 6/14, 8/14)
MCK
(SEE PAGE 4-19, 25, 31, 36, 47)
5
TO VC-177 BOARD (1/14, 3/14, 5/14, 6/14, 9/14)
A5
XRST_SYSTEM
2
TO VC-177 BOARD(1/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 31, 36, 46)
CK_CONT
SYS_V
A_4.9V
D_3.2V
REG_GND
14
TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
15
TO VC-177 BOARD(4/14)
(SEE PAGE 4-30)
MEMI_VD
L1654
10uH
2520
E5
E4
E13
A5
A3
A4
A2
A1
S1
S2
3
0.1
2.9
2.8
2.6
0.2
2.9
0
2.6
3.1
3.1
2.9
2.7
0
3.1
1.5
2.9
61
60
2.8
3.1
S3
50
49
(F-15)
IC152
CAMERA Y/C PROCESSER
IC152
CXD2175R-T6
CAMERA Y PROCESS
CAMERA C PROCESS
3.1
1.3 Y0
1.2 Y1
1.4 Y2
1.2 Y3
1.3 Y4
0.9 Y5
2.5 Y6
0.8 Y7
59
58
56
57
E13
XSG_V_RST
17
TO VC-177 BOARD(9/14)
(SEE PAGE 4-48)
A4
XCS_SYSTEM
3
TO VC-177 BOARD (1/14, 3/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 25, 30, 31, 36, 46)
A3
VC_SI
18
TO VC-177 BOARD (3/14, 4/14, 5/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-25, 30, 31, 36, 46, 54)
A1
A2
XVC_SCK
VC_SO
4
TO VC-177 BOARD(1/14, 3/14, 4/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 25, 30, 31, 36, 46, 54, 57)
3.1
1.1
1.1
1.1
1.1
3.1
3.1
C3
C2
C1
C0
CAM
55

VC-177 (CAMERA (3)) SCHEMATIC DIAGRAM

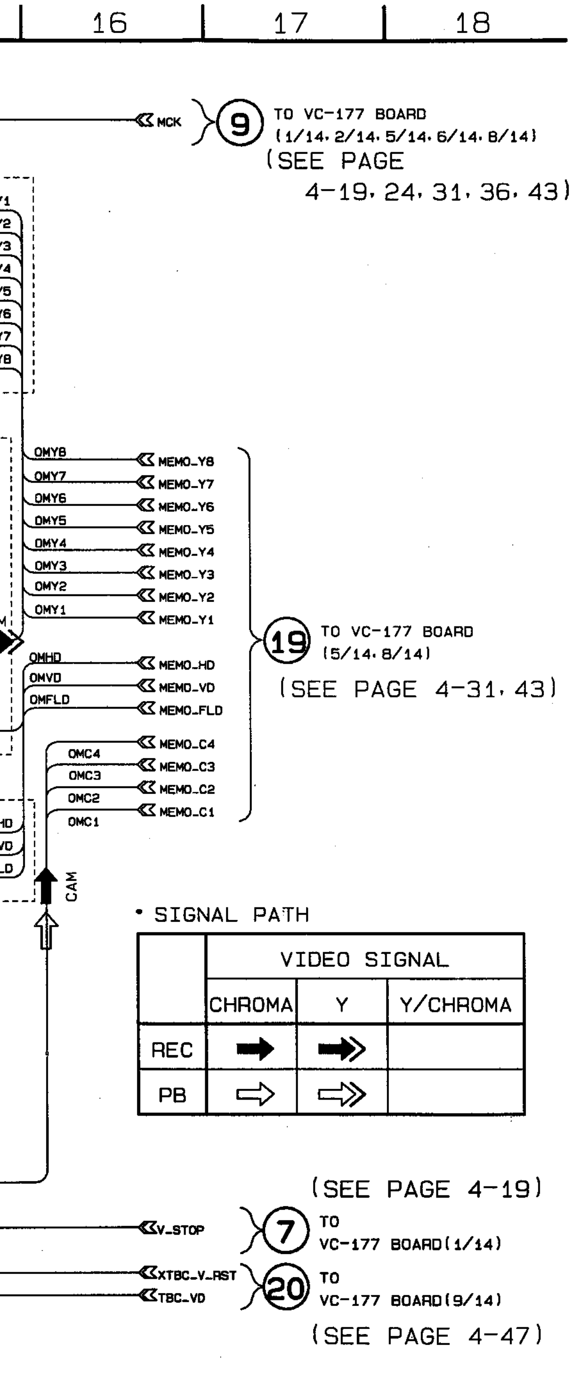
— Ref No. VC-177 BOARD: 10,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
VC-177 BOARD(3/14)
(ME BLOCK)
no mark : CAMERA REC mode
TO VC-177 BOARD (1/14, 2/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 24, 31, 36, 47)
5
XRST_SYSTEM
XRST
TO VC-177 BOARD (1/14, 2/14, 4/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 24, 30, 31, 36, 46, 54, 57)
4
VC_SO
XVC_SCK
SI
XSCK
TO VC-177 BOARD (2/14, 4/14, 5/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-24, 30, 31, 36, 45, 54)
18
VC_SI
SO
TO VC-177 BOARD (1/14, 2/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 24, 30, 31, 36, 46)
3
XCS_SYSTEM
XCS
MEMI_Y8
MEMI_Y7
MEMI_Y6
MEMI_Y5
MEMI_Y4
MEMI_Y3
MEMI_Y2
MEMI_Y1
IY8
IY7
IY6
IY5
IY4
IY3
IY2
IY1
TO VC-177 BOARD (2/14, 5/14)
(SEE PAGE 4-24, 31)
13
MEMI_HD
MEMI_VD
MEMI_FLD
IHD
IVD
IFLD
MEMI_C4
MEMI_C3
MEMI_C2
MEMI_C1
IC4
IC3
IC2
IC1
TO VC-177 BOARD (14/14)
(SEE PAGE 4-63)
21
SYS_V
CL
D_3.2
REG_GND
SYSV
CAM
C1702 1 F
FB1701 HS601
SYSV
XRST
XSCK
XCS
SI
SO
(E-17)
IC114
ZOOM TBC PROCESSOR
IC114 CXD2177R-T6
ZOOM TBC PROCESS
2.8
3
1.5
3.1
1.3
1.2
1.4
1.2
1.3
0.9
2.5
0.8
2.6
0
3
1.3
3.1
1
3
2.6
0.2
2.8
0
3
3.1
3.1
1.5
1.5
1.2
0.8
1.8
0.6
2.4
1
1.1
3.1
3.1
1.1
1.5
3
2.8
3.1
OFLD
OVD
OHD
60
61
IC1
IC2
IC3
IC4
OC4
OC3
OC2
OC1
CAM
09



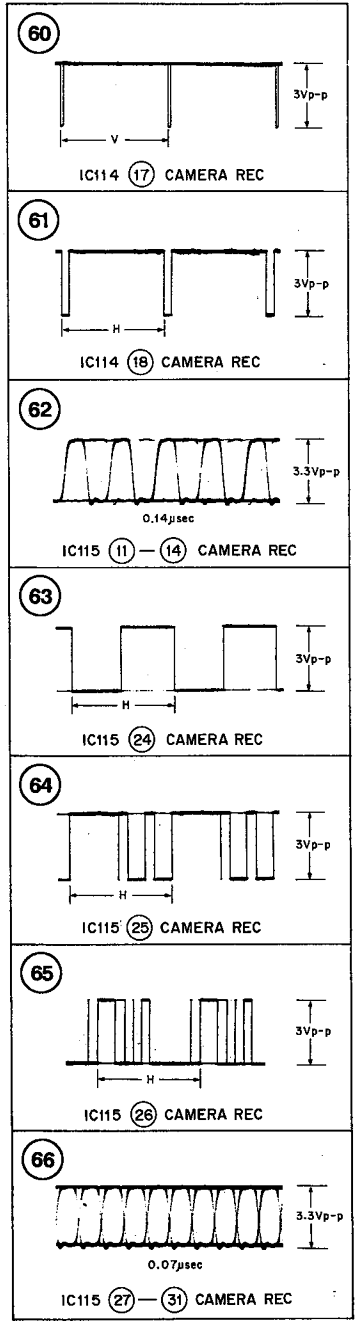
9
10
11
12
13
14
15
16
17
MCK
9
TO VC-177
(1/14. 2/14.
(SEE PAG
4-19.
SYSV
XSCK
XCS
SI
SO
TR710
OY1 R1716 0 OMY1
OY2 R1717 0 OMY2
OY3 R1718 0 OMY3
OY4 R1720 0 OMY4
OY5 R1722 0 OMY5
OY6 R1724 0 OMY6
OY7 R1725 0 OMY7
OY8 R1726 0 OMY8
TR910
XRST
(E-2)
IC115
CNR PROCESSOR
IC115
CXD2178R-T6
CNR PROCESS
VSS
TST1
TST2
TST3
VDD
VDD
MCK
VSS
VCK
VDD
SYSV
XSCK
XCS
SI
SO
VSS
XRST
NC
VSS
IY1
IY2
IY3
IY4
IY5
IY6
IY7
IY8
VDD
IHD
IVD
IFLD
VSS
OY1
OY2
OY3
OY4
OY5
OY6
OY7
OY8
VDD
OHD
OVD
OFLD
TST4
OT1
VSS
AVD
NC
AVS
TSAD
VSS
IC1
IC2
IC3
IC4
VDD
OC4
OC3
OC2
OC1
OT2
VSS
66
65
64
63
62
CAM
OHD
OVD
OFLD
C1703
0.01
B
OMY8
OMY7
OMY6
OMY5
OMY4
OMY3
OMY2
OMY1
OMHD
OMVD
OMFLD
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
MEMO_HD
MEMO_VD
MEMO_FLD
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
OMC4
OMC3
OMC2
OMC1
19
TO VC-
(5/14.
(SEE PA
TR710
OHD R1719 0 OMHD
OVD R1721 0 OMVD
OFLD OMFLD
R1723 0
R1730 0
R1729 0
R1728 0
R1727 0
OC4
OMC4
TR710
V_STOP
7
TO VC-177
XTBC_V_RST
TBC_VD
20
TO VC-177
(SEE
(SEE
• SIGNAL PATH
VIDEO S
CHROMA
Y
REC
PB


16
17
18
MCK
9
TO VC-177 BOARD
(1/14, 2/14, 5/14, 6/14, 8/14)
(SEE PAGE
4-19, 24, 31, 36, 43)
OMY8
OMY7
OMY6
OMY5
OMY4
OMY3
OMY2
OMY1
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
OMHD
OMVD
OMFLD
MEMO_HD
MEMO_VD
MEMO_FLD
OMC4
OMC3
OMC2
OMC1
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
19
TO VC-177 BOARD
(5/14, 8/14)
(SEE PAGE 4-31, 43)
CAM
(SEE PAGE 4-19)
V_STOP
7
TO
VC-177 BOARD(1/14)
XTBC_V_RST
TBC_VD
20
TO
VC-177 BOARD(9/14)
(SEE PAGE 4-47)

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡》	
PB	⇨	⇨》	

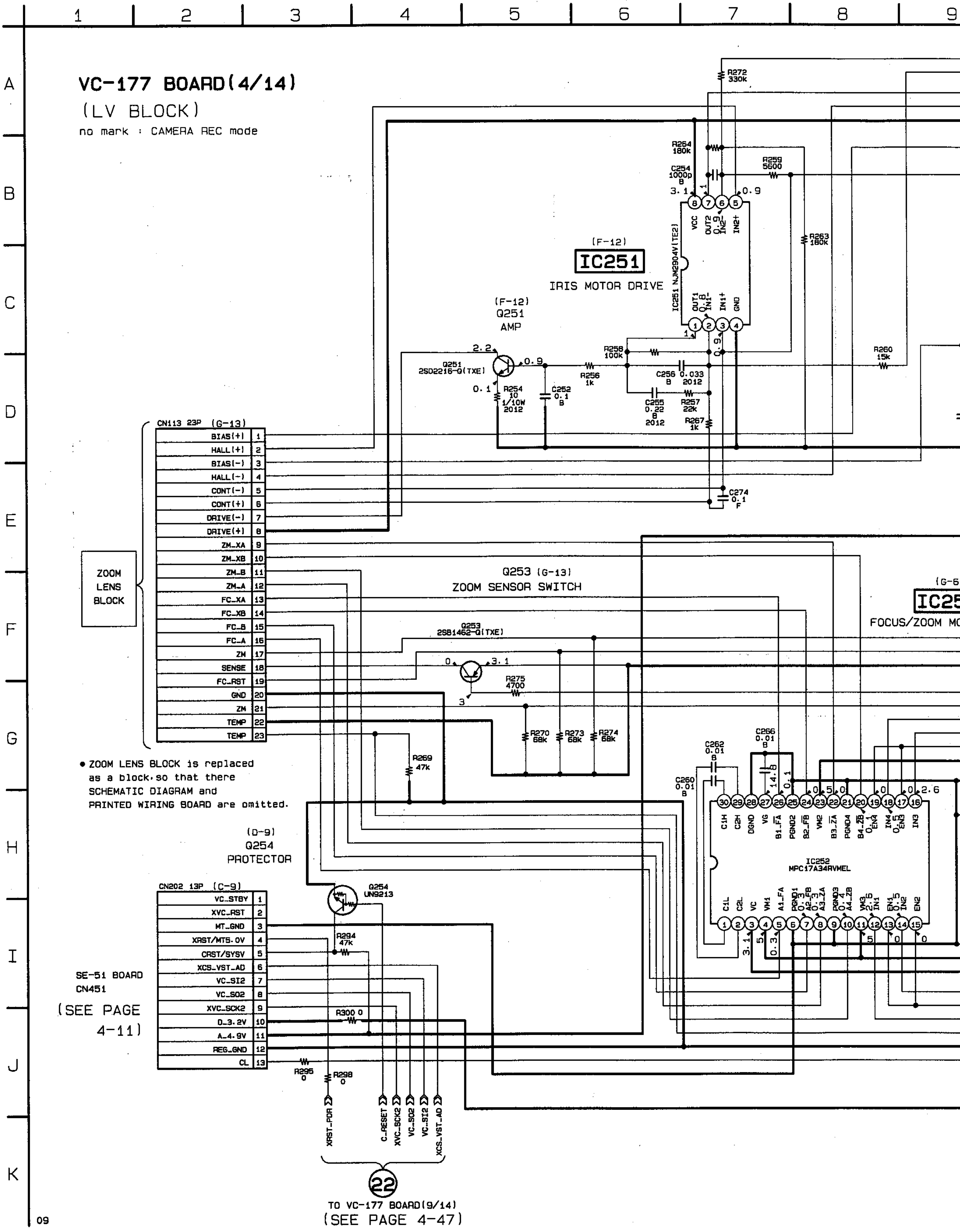
VC-177 BOARD (ME BLOCK)



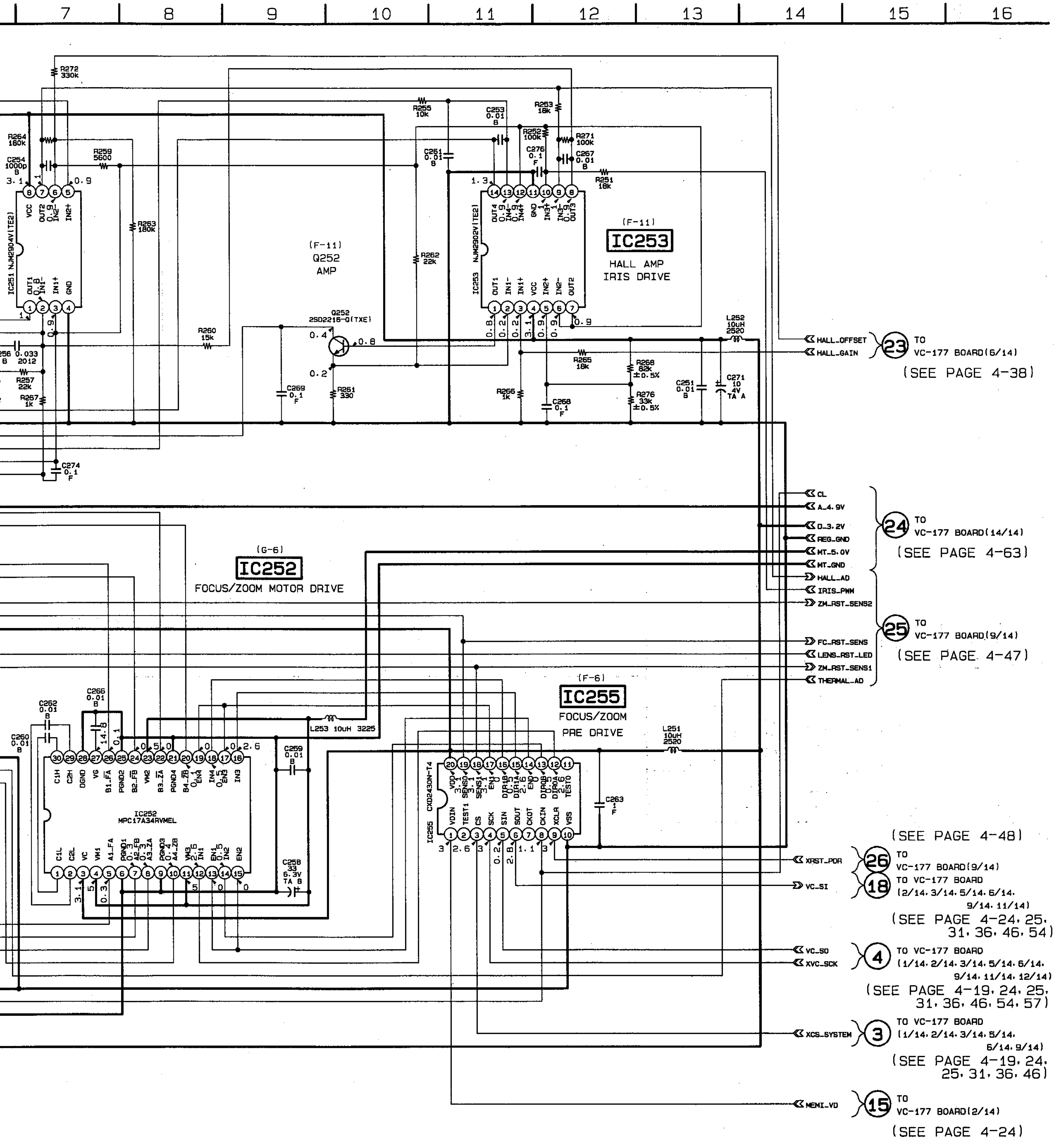
VC-177 (CAMERA (4)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(4/14)
(LV BLOCK)
no mark : CAMERA REC mode
R272 330k
R264 180k
C254 1000p B
R259 5600
3.1
0.9
VCC
OUT2
IN2-
IN2+
(F-12)
IC251
IRIS MOTOR DRIVE
IC251 NJM2904V(TE2)
R263 180k
OUT1
IN1-
IN1+
GND
0.8
(F-12)
Q251
AMP
2.2
0.9
Q251 2SD2216-Q(TXE)
0.1
R254 10 1/10W 2012
C252 0.1 B
R258 100k
R256 1k
C256 0.033 B 2012
C255 0.22 B 2012
R257 22k
R267 1k
R260 15k
C274 0.1 F
CN113 23P (G-13)
BIAS(+) 1
HALL(+) 2
BIAS(-) 3
HALL(-) 4
CONT(-) 5
CONT(+) 6
DRIVE(-) 7
DRIVE(+) 8
ZM_XA 9
ZM_XB 10
ZM_B 11
ZM_A 12
FC_XA 13
FC_XB 14
FC_B 15
FC_A 16
ZM 17
SENSE 18
FC_RST 19
GND 20
ZM 21
TEMP 22
TEMP 23
ZOOM LENS BLOCK
Q253 (G-13)
ZOOM SENSOR SWITCH
Q253 2SB1462-Q(TXE)
0
3.1
3
R275 4700
R270 68k
R273 68k
R274 68k
R269 47k
(G-6)
IC25
FOCUS/ZOOM MO
• ZOOM LENS BLOCK is replaced as a block, so that there SCHEMATIC DIAGRAM and PRINTED WIRING BOARD are omitted.
C262 0.01 B
C266 0.01 B
C260 0.01 B
14.8
0.1
0
5
0
0
0
2.6
C1H
C2H
DGND
VG
B1_FA
PGND2
B2_FB
VM2
B3_ZA
PGND4
B4_ZB
EN4
IN4
EN3
IN3
IC252 MPC17A34RVMEL
C1L
C2L
VC
VM1
A1_FA
PGND1
A2_FB
A3_ZA
PGND3
A4_ZB
VM3
EN1
IN1
IN2
EN2
3.1
5
0.3
5
0
0
(D-9)
Q254
PROTECTOR
Q254 UN9213
CN202 13P (C-9)
VC_STBY 1
XVC_RST 2
MT_GND 3
XRST/MT5.0V 4
CRST/SYSV 5
XCS_VST_AD 6
VC_SI2 7
VC_SO2 8
XVC_SCK2 9
D_3.2V 10
A_4.9V 11
REG_GND 12
CL 13
R294 47k
R300 0
R295 0
R298 0
SE-51 BOARD CN451
(SEE PAGE 4-11)
XRST_PDR
C_RESET
XVC_SCK2
VC_SO2
VC_SI2
XCS_VST_AD
22
TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
09

for Printed Wiring Board.

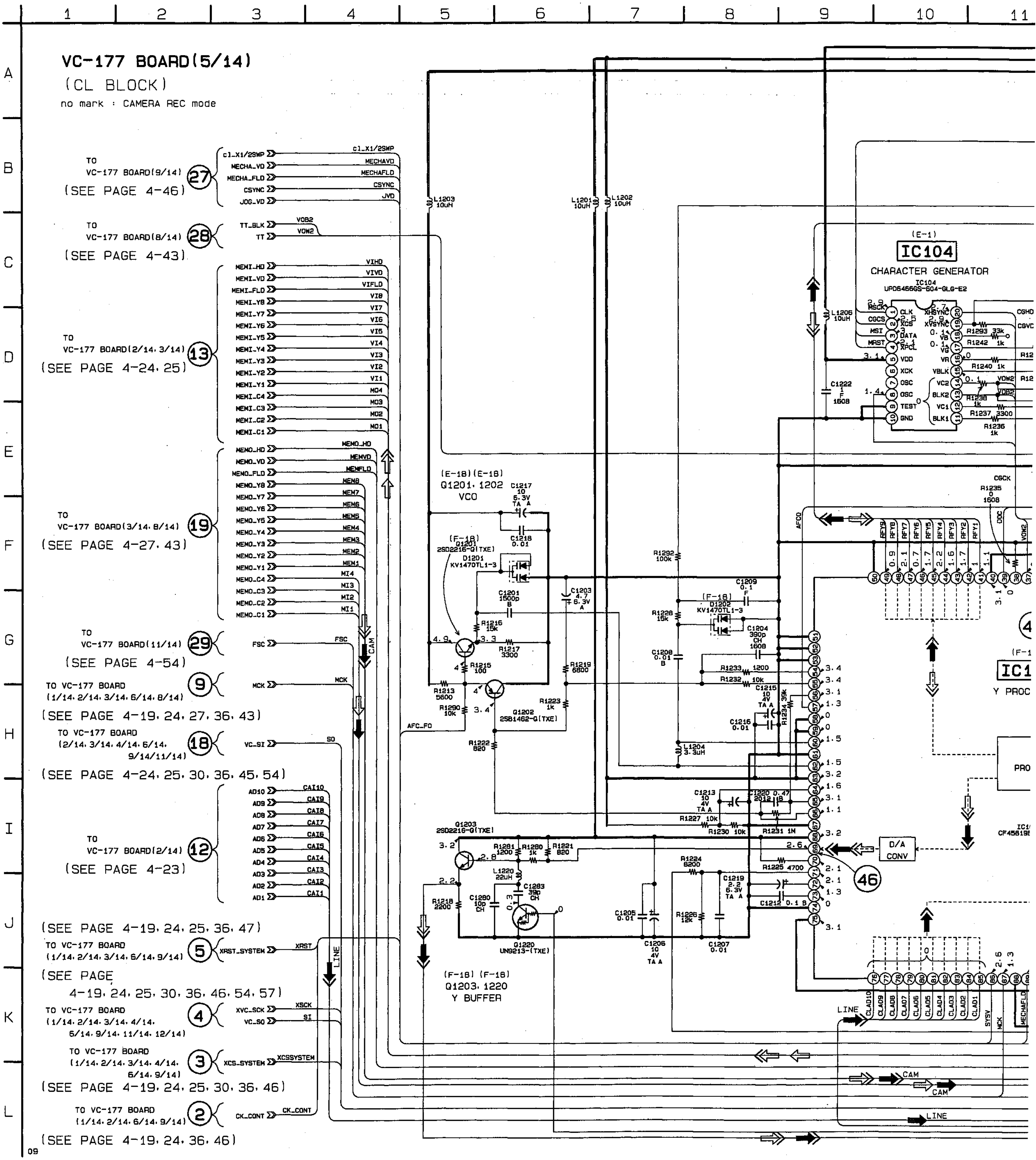


7
8
9
10
11
12
13
14
15
16
R272 330k
R264 180k
C254 1000p B
R259 5600
R263 180k
IC251 NJM2904V(TE2)
VCC
OUT2
IN2-
IN2+
OUT1
IN1-
IN1+
GND
R260 15k
R257 22k
R267 1k
C274 0.1 F
(F-11)
Q252
AMP
Q252
2SD2216-Q(TXE)
R262 22k
C269 0.1 F
R261 330
R255 10k
C253 0.01 B
C261 0.01 B
R253 18k
R252 100k
C276 0.1 F
R271 100k
C267 0.01 B
R251 18k
IC253 NJM2902V(TE2)
OUT4
IN4-
IN4+
GND
IN3+
IN3-
OUT3
OUT1
IN1-
IN1+
VCC
IN2+
IN2-
OUT2
(F-11)
IC253
HALL AMP
IRIS DRIVE
R265 18k
R266 1k
R268 82k ±0.5%
C268 0.1 F
R276 33k ±0.5%
C251 0.01 B
C271 10 4V TA A
L252 10uH 2520
HALL_OFFSET
HALL_GAIN
23
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
(G-6)
IC252
FOCUS/ZOOM MOTOR DRIVE
CL
A_4.9V
D_3.2V
REG_GND
MT_5.0V
MT_GND
HALL_AD
IRIS_PWM
ZM_RST_SENS2
24
TO VC-177 BOARD(14/14)
(SEE PAGE 4-63)
FC_RST_SENS
LENS_RST_LED
ZM_RST_SENS1
THERMAL_AD
25
TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
C262 0.01 B
C266 0.01 B
C260 0.01 B
L253 10uH 3225
C259 0.01 B
C1H
C2H
DGND
VG
B1_FA
PGND2
B2_FB
VM2
B3_ZA
PGND4
B4_ZB
EN4
IN4
EN3
IN3
IC252
MPC17A34RVMEL
C1L
C2L
VC
VM1
A1_FA
PGND1
A2_FB
A3_ZA
PGND3
A4_ZB
VM3
IN1
EN1
IN2
EN2
C258 33 6.3V TA B
(F-6)
IC255
FOCUS/ZOOM
PRE DRIVE
L251 10uH 2520
IC255 CXD2430N-T4
VDD
SENS0
SENS1
EN
DIR1B
DIR1A
END
DIR0B
DIR0A
TEST0
VDIN
TEST1
CS
SCK
SIN
SOUT
CKOT
CKIN
XCLR
VSS
C263 1 F
(SEE PAGE 4-48)
XRST_POR
VC_SI
26
TO VC-177 BOARD(9/14)
18
TO VC-177 BOARD (2/14, 3/14, 5/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-24, 25, 31, 36, 46, 54)
VC_SO
XVC_SCK
4
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 24, 25, 31, 36, 46, 54, 57)
XCS_SYSTEM
3
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 24, 25, 31, 36, 46)
MEMI_VD
15
TO VC-177 BOARD(2/14)
(SEE PAGE 4-24)

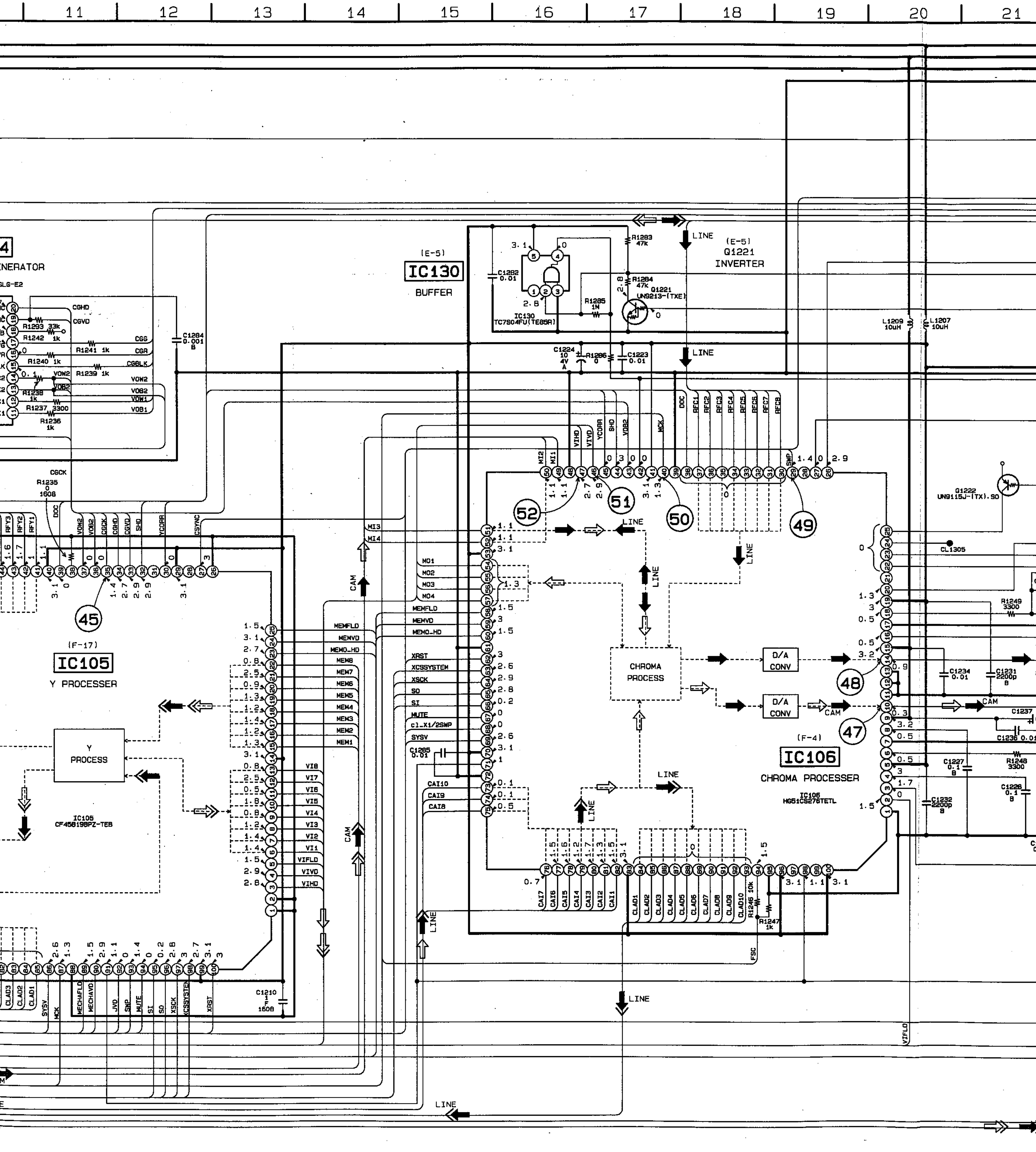
VC-177 (Y/C PROCESS) SCHEMATIC DIAGRAM

• Refer to page 4 – 13 for Printed Wiring Board.

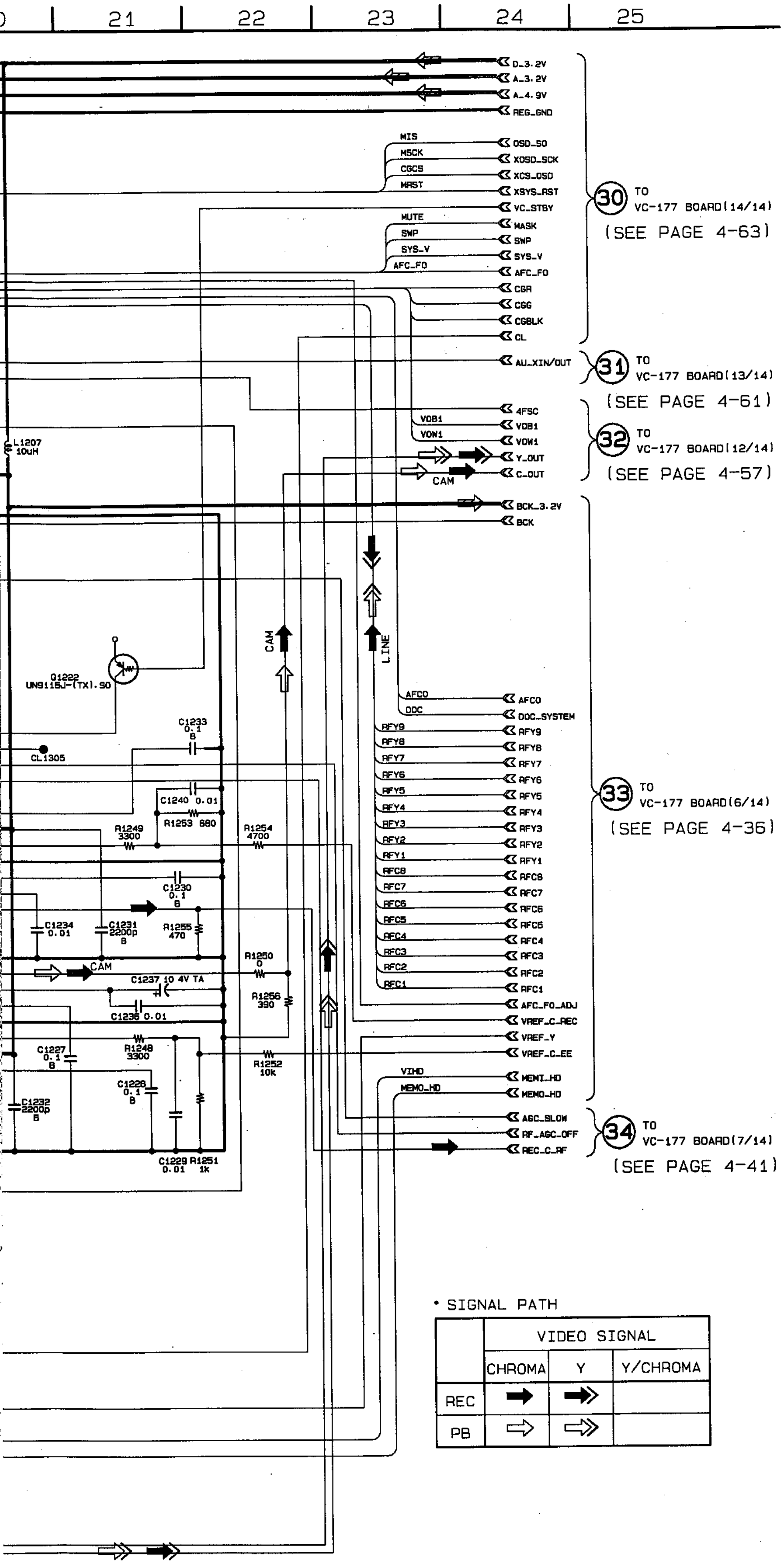
— Ref No. VC-177 BOARD: 10,000 series —



VC-177 BOARD(5/14)
(CL BLOCK)
no mark : CAMERA REC mode
TO VC-177 BOARD(9/14) (SEE PAGE 4-46)
27
cl_X1/2SWP
MECHA_VD
MECHA_FLD
CSYNC
JOG_VD
TO VC-177 BOARD(8/14) (SEE PAGE 4-43)
28
TT_BLK
TT
VOB2
VOW2
TO VC-177 BOARD(2/14, 3/14) (SEE PAGE 4-24, 25)
13
MEMI_HD
MEMI_VD
MEMI_FLD
MEMI_Y8
MEMI_Y7
MEMI_Y6
MEMI_Y5
MEMI_Y4
MEMI_Y3
MEMI_Y2
MEMI_Y1
MEMI_C4
MEMI_C3
MEMI_C2
MEMI_C1
VIHD
VIVD
VIFLD
VI8
VI7
VI6
VI5
VI4
VI3
VI2
VI1
MO4
MO3
MO2
MO1
TO VC-177 BOARD(3/14, 8/14) (SEE PAGE 4-27, 43)
19
MEMO_HD
MEMO_VD
MEMO_FLD
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
MEMVD
MEMFLD
MEM8
MEM7
MEM6
MEM5
MEM4
MEM3
MEM2
MEM1
MI4
MI3
MI2
MI1
TO VC-177 BOARD(11/14) (SEE PAGE 4-54)
29
FSC
TO VC-177 BOARD (1/14, 2/14, 3/14, 6/14, 8/14) (SEE PAGE 4-19, 24, 27, 36, 43)
9
MCK
TO VC-177 BOARD (2/14, 3/14, 4/14, 6/14, 9/14/11/14) (SEE PAGE 4-24, 25, 30, 36, 45, 54)
18
VC_SI
SO
TO VC-177 BOARD(2/14) (SEE PAGE 4-23)
12
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
CAI10
CAI9
CAI8
CAI7
CAI6
CAI5
CAI4
CAI3
CAI2
CAI1
(SEE PAGE 4-19, 24, 25, 36, 47)
TO VC-177 BOARD (1/14, 2/14, 3/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 25, 30, 36, 46, 54, 57)
5
XRST_SYSTEM
XRST
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 6/14, 9/14, 11/14, 12/14)
4
XVC_SCK
VC_SO
XSCK
SI
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 25, 30, 36, 46)
3
XCS_SYSTEM
XCSSYSTEM
TO VC-177 BOARD (1/14, 2/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 36, 46)
2
CK_CONT
CAM
LINE
AFC_FO
L1203 10uH
L1201 10uH
L1202 10uH
(E-18) (E-18) Q1201, 1202 VCO
C1217 10 6.3V TA A
C1218 0.01
(F-18) Q1201 2SD2216-Q(TXE)
D1201 KV1470TL1-3
C1201 1500p B
R1216 15k
R1217 3300
R1215 100
R1213 5600
R1290 10k
Q1202 2SB1462-Q(TXE)
R1223 1k
R1222 820
C1203 4.7 6.3V A
R1219 6800
R1292 100k
R1228 15k
C1209 0.1 F
(F-18) D1202 KV1470TL1-3
C1204 390p CH 1608
C1208 0.01 B
R1233 1200
R1232 10k
C1215 10 4V TA A
R1234 39k
C1216 0.01
L1204 3.3uH
C1213 10 4V TA A
C1220 0.47 2012 B
R1227 10k
R1230 10k
R1231 1M
Q1203 2SD2216-Q(TXE)
R1281 1200
R1280 1k
R1221 820
R1224 8200
R1225 4700
L1220 22uH
C1283 39p CH
R1218 2200
C1280 10p CH
Q1220 UN9213-(TXE)
C1205 0.01
C1206 10 4V TA A
R1226 12k
C1207 0.01
C1219 2.2 6.3V TA A
C1212 0.1 B
(F-18) (F-18) Q1203, 1220 Y BUFFER
D/A CONV
46
L1206 10uH
C1222 1 F 1608
(E-1) IC104 CHARACTER GENERATOR
IC104 UPD6466GS-604-GLG-E2
RSCK
CGCS
MSI
MRST
CLK
XCS
DATA
XPCL
VDD
XCK
OSC
OSC
TEST
GND
XHSYNC
XVSYNC
VB
VG
VR
VBLK
VC2
BLK2
VC1
BLK1
R1293 33k
R1242 1k
R1240 1k
R1238 1k
R1237 3300
R1236 1k
CGHD
CGVD
VOW2
VOB2
CGCK
R1235 0 1608
AFCO
OOC
RFY8
RFY7
RFY6
RFY5
RFY4
RFY3
RFY2
RFY1
(F-1
IC1
Y PROC
PRO
IC1
CF45619E
CLAD10
CLAD09
CLAD08
CLAD07
CLAD06
CLAD05
CLAD04
CLAD03
CLAD02
CLAD01
SYSV
MCK
MECHAFLD
LINE
CAM
09



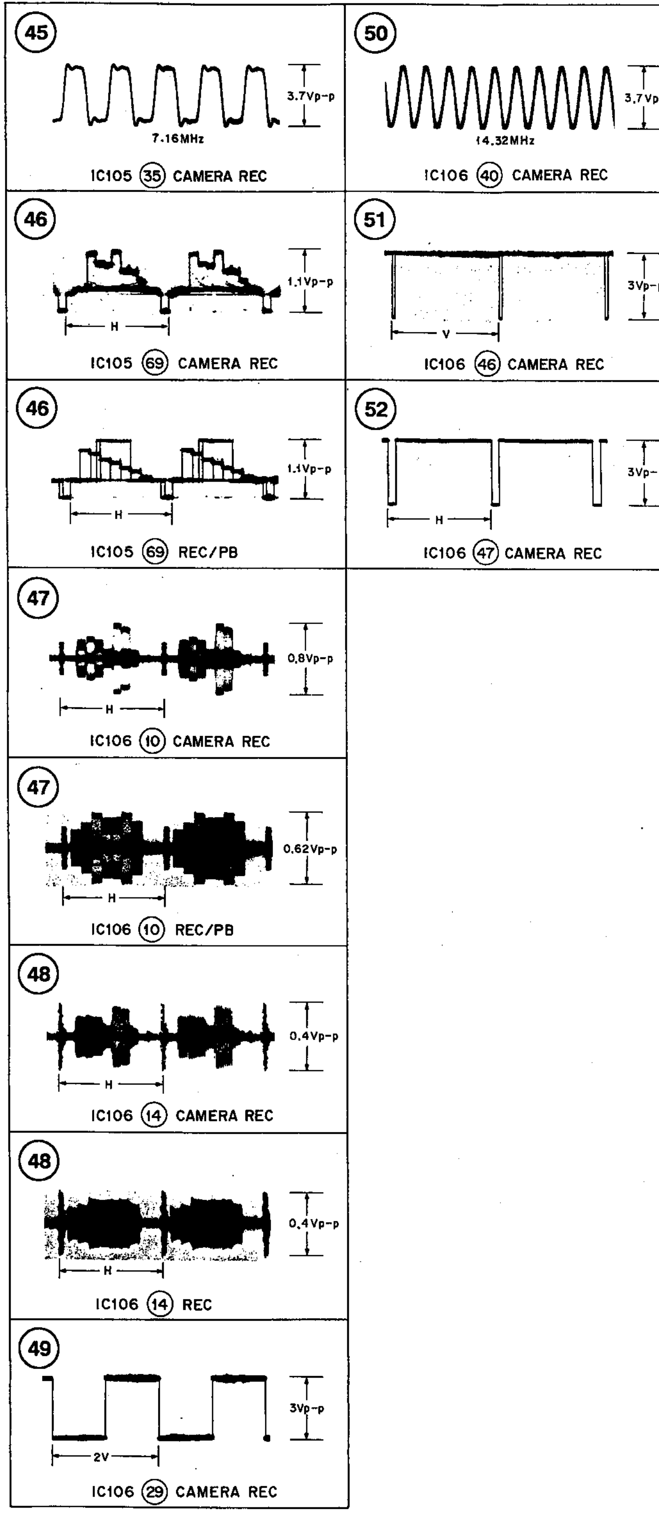
11
12
13
14
15
16
17
18
19
20
21
ENERATOR
(E-5)
IC130
BUFFER
IC130
TC7S04FU(TE85R)
(E-5)
Q1221
INVERTER
Q1221
UN9213-(TXE)
R1283
47k
R1284
47k
R1285
1M
C1282
0.01
C1284
0.001
B
C1224
10
4V
A
R1286
0
C1223
0.01
L1209
10uH
L1207
10uH
LINE
CAM
R1293 33k
R1242 1k
R1241 1k
R1240 1k
R1239 1k
R1238 1k
R1237 3300
R1236 1k
R1235 0 1608
CGHD
CGVD
CGG
CGR
CGBLK
VOW2
VOB2
VOW1
VOB1
CGCK
DOC
45
(F-17)
IC105
Y PROCESSER
Y PROCESS
IC105
CF45819BPZ-TEB
C1210
1608
MI3
MI4
MO1
MO2
MO3
MO4
MEMFLD
MEMVD
MEMO_HD
MEM8
MEM7
MEM6
MEM5
MEM4
MEM3
MEM2
MEM1
VI8
VI7
VI6
VI5
VI4
VI3
VI2
VI1
VIFLD
VIVD
VIHD
XRST
XCSSYSTEM
XSCK
SO
SI
MUTE
cl_X1/2SWP
SYSV
C1285
0.01
CAI10
CAI9
CAI8
CAI7
CAI6
CAI5
CAI4
CAI3
CAI2
CAI1
CLAD1
CLAD2
CLAD3
CLAD4
CLAD5
CLAD6
CLAD7
CLAD8
CLAD9
CLAD10
MCK
MECHAFLD
MECHAVD
JVD
SWP
FSC
R1246 10k
R1247 1k
MI2
MI1
VIHD
VIVD
YCORR
SHD
VOB2
RFC1
RFC2
RFC3
RFC4
RFC5
RFC6
RFC7
RFC8
52
51
50
49
48
47
CHROMA PROCESS
D/A CONV
D/A CONV
(F-4)
IC106
CHROMA PROCESSER
IC106
HG51CS276TETL
CL1305
Q1222
UN9115J-(TX).SO
R1249
3300
C1234
0.01
C1231
2200p
B
C1237
C1236 0.01
C1227
0.1
B
R1248
3300
C1226
0.1
B
C1232
2200p
B
VIFLD
RFY1
RFY2
RFY3
CSYNC


21
22
23
24
25
D_3.2V
A_3.2V
A_4.9V
REG_GND
MIS
MSCK
CGCS
MRST
OSD_SO
XOSD_SCK
XCS_OSD
XSYS_RST
VC_STBY
MUTE
MASK
SWP
SYS_V
AFC_FO
CGR
CGG
CGBLK
CL
30 TO VC-177 BOARD(14/14)
(SEE PAGE 4-63)
AU_XIN/OUT
31 TO VC-177 BOARD(13/14)
(SEE PAGE 4-61)
4FSC
VOB1
VOW1
Y_OUT
C_OUT
CAM
32 TO VC-177 BOARD(12/14)
(SEE PAGE 4-57)
BCK_3.2V
BCK
L1207 10uH
CAM
LINE
Q1222 UN9115J-(TX).SO
AFCO
DOC
DOC_SYSTEM
RFY9
RFY8
RFY7
RFY6
RFY5
RFY4
RFY3
RFY2
RFY1
RFC8
RFC7
RFC6
RFC5
RFC4
RFC3
RFC2
RFC1
AFC_FO_ADJ
VREF_C_REC
VREF_Y
VREF_C_EE
VIHD
MEMO_HD
MEMI_HD
33 TO VC-177 BOARD(6/14)
(SEE PAGE 4-36)
AGC_SLOW
RF_AGC_OFF
REC_C_RF
34 TO VC-177 BOARD(7/14)
(SEE PAGE 4-41)
C1233 0.1 B
CL1305
C1240 0.01
R1253 680
R1249 3300
R1254 4700
C1230 0.1 B
C1234 0.01
C1231 2200p B
R1255 470
R1250 0
C1237 10 4V TA
R1256 390
C1236 0.01
C1227 0.1 B
R1248 3300
R1252 10k
C1228 0.1 B
C1232 2200p B
C1229 0.01
R1251 1k

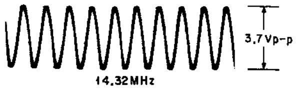
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	
PB	⇨	⇨⇨	

VC-177 BOARD(CL BLOCK)

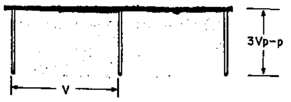


㊿



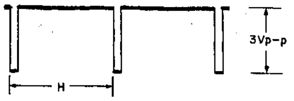
IC106 ㊵ CAMERA REC

(51)



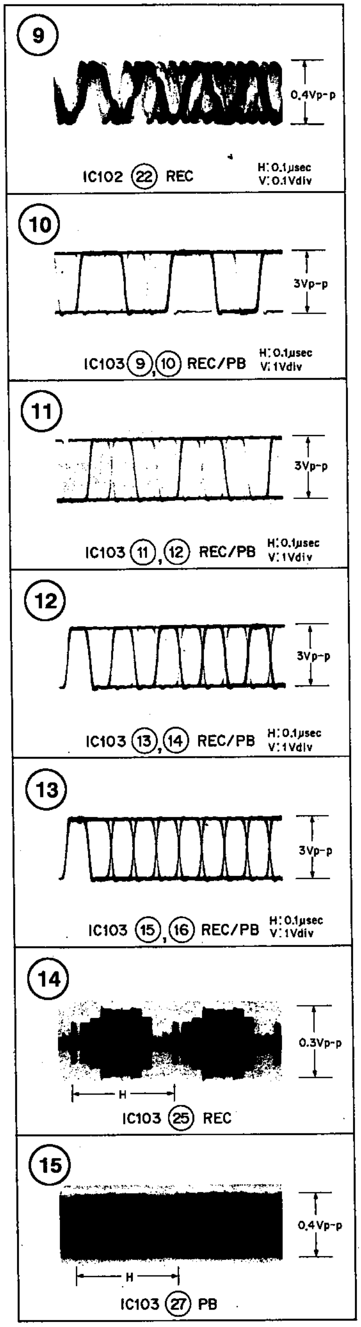
IC106 ㊻ CAMERA REC

(52)



IC106 ㊼ CAMERA REC

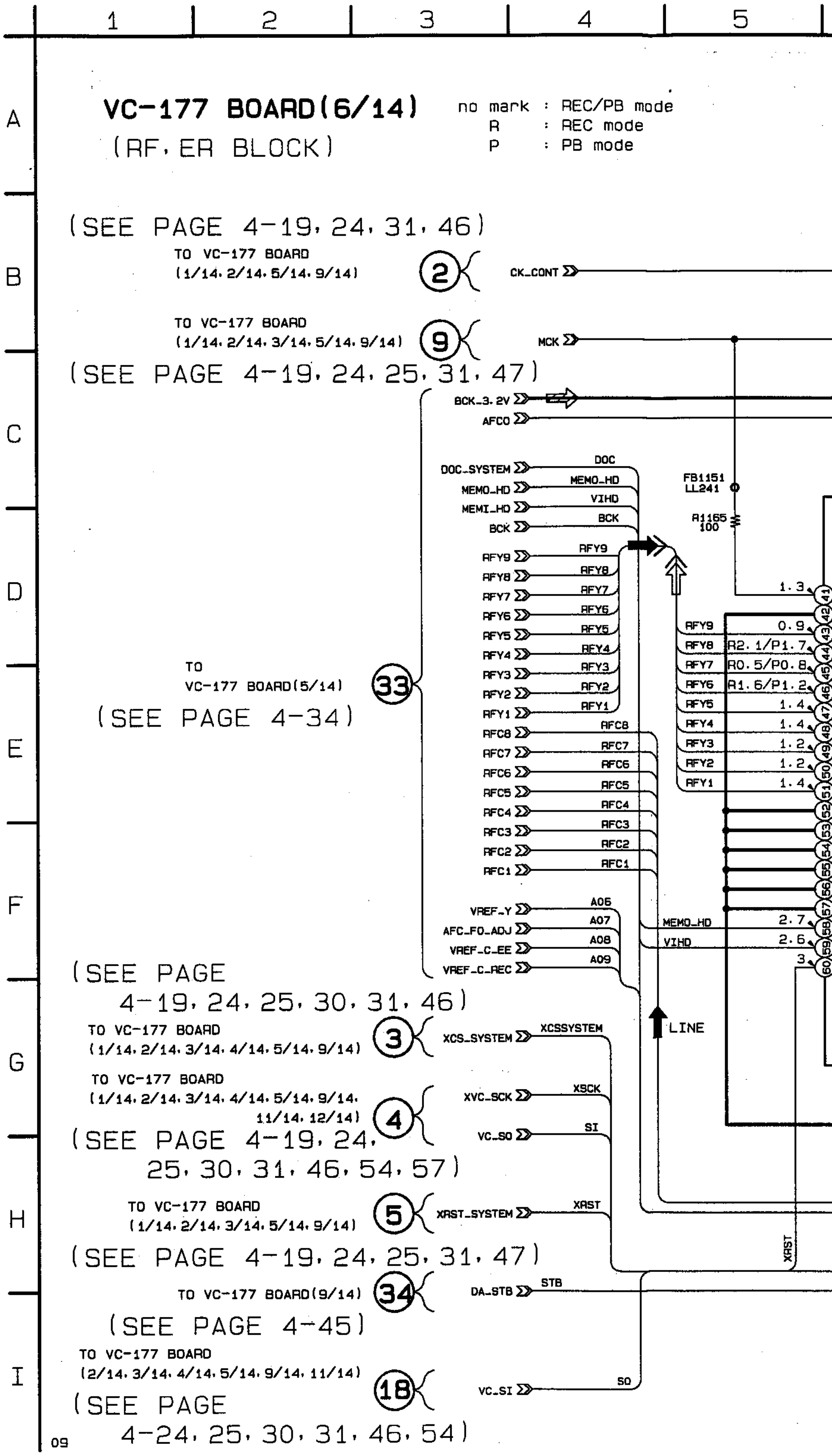
VC-177 BOARD (RF BLOCK)



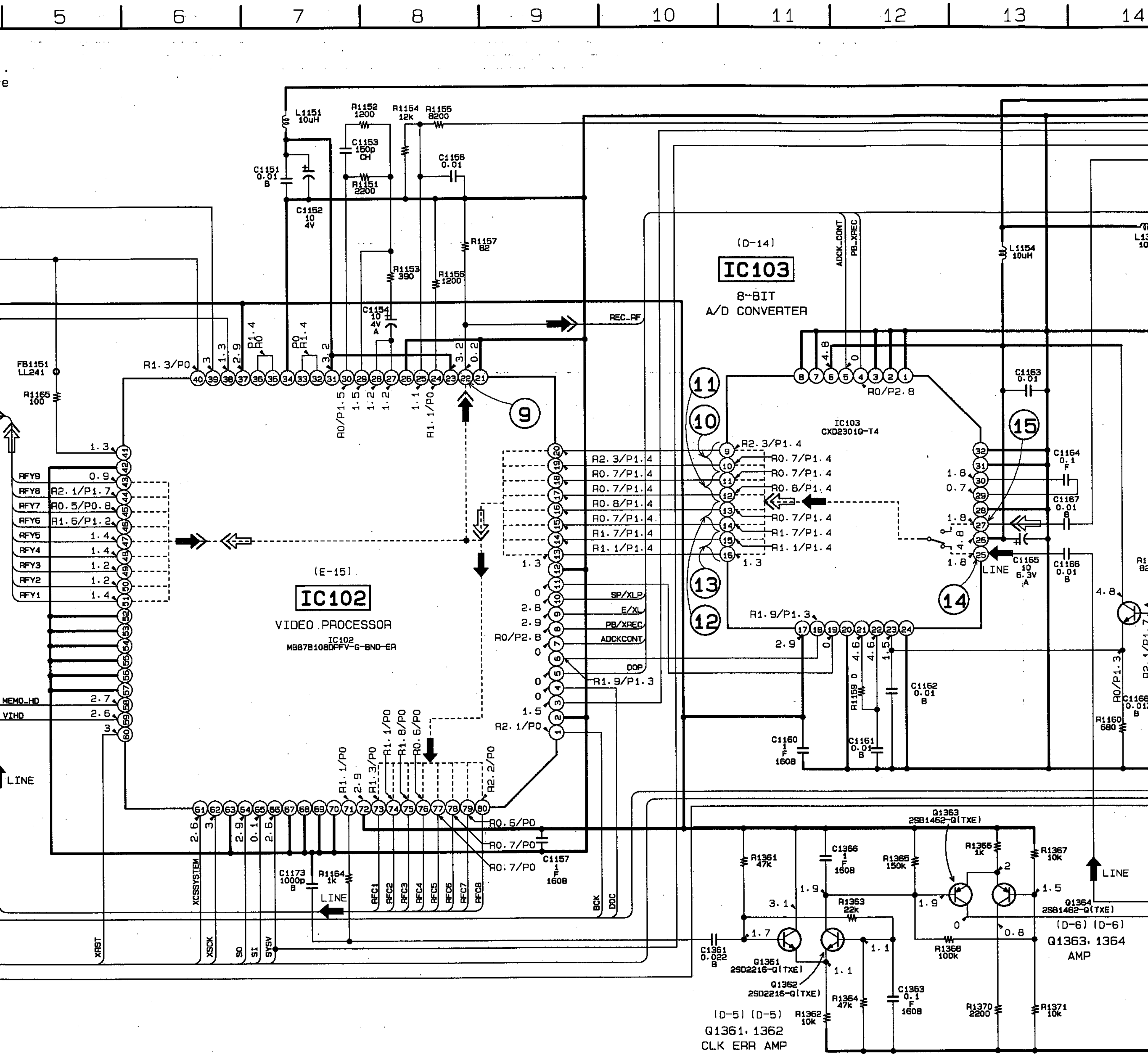
VC-177 (VIDEO PROCESS (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

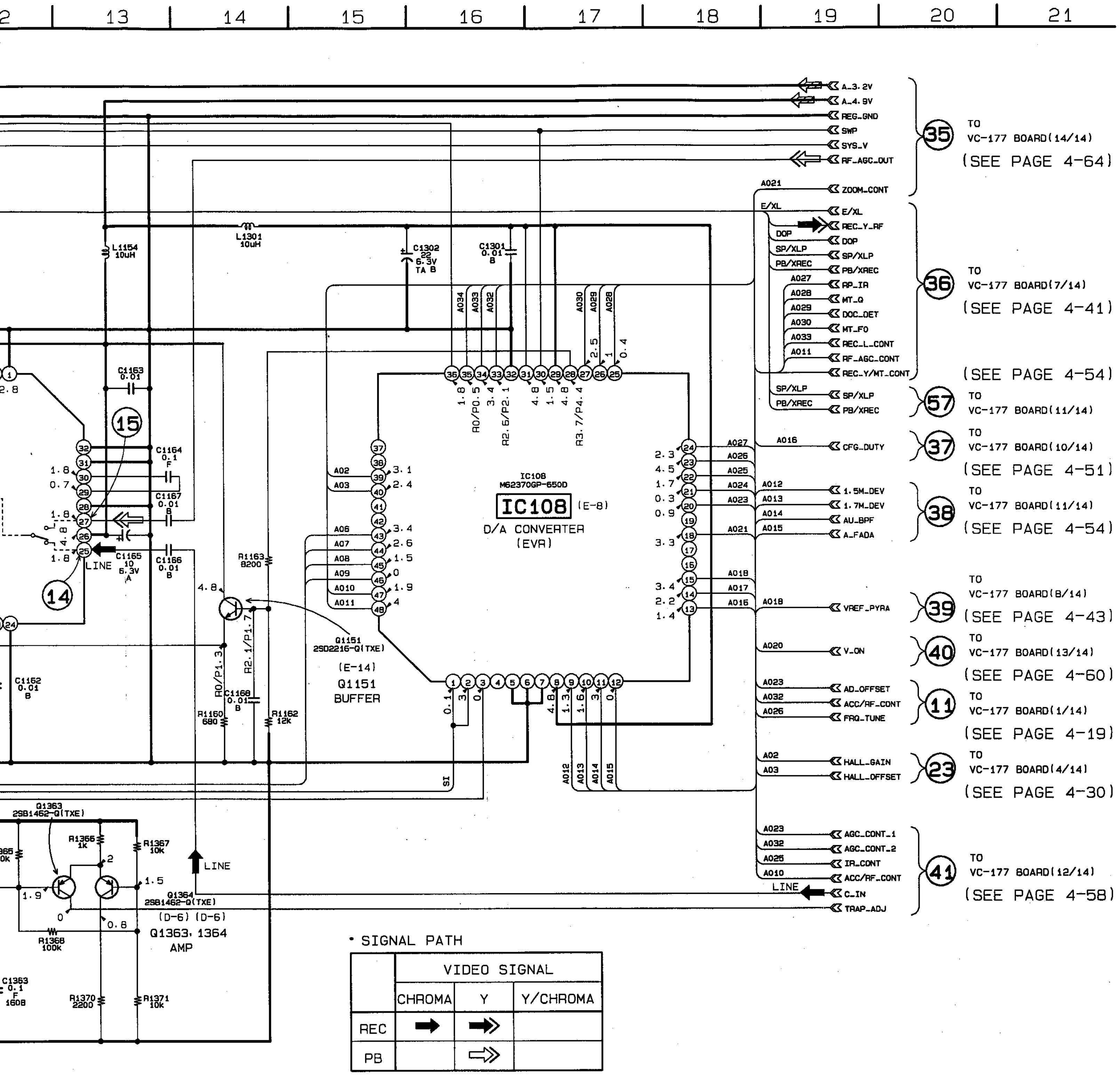
• Refer to p


1
2
3
4
5
A
B
C
D
E
F
G
H
I
VC-177 BOARD(6/14)
(RF, ER BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
(SEE PAGE 4-19, 24, 31, 46)
TO VC-177 BOARD (1/14, 2/14, 5/14, 9/14)
2
CK_CONT
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 9/14)
9
MCK
(SEE PAGE 4-19, 24, 25, 31, 47)
BCK_3.2V
AFCO
DOC_SYSTEM
MEMO_HD
MEMI_HD
BCK
DOC
MEMO_HD
VIHD
BCK
RFY9
RFY8
RFY7
RFY6
RFY5
RFY4
RFY3
RFY2
RFY1
RFC8
RFC7
RFC6
RFC5
RFC4
RFC3
RFC2
RFC1
TO VC-177 BOARD(5/14)
33
(SEE PAGE 4-34)
FB1151 LL241
R1165 100
1.3
0.9
R2.1/P1.7
R0.5/P0.8
R1.6/P1.2
1.4
1.4
1.2
1.2
1.4
VREF_Y
AFC_FO_ADJ
VREF_C_EE
VREF_C_REC
A06
A07
A08
A09
MEMO_HD
VIHD
2.7
2.6
3
LINE
(SEE PAGE 4-19, 24, 25, 30, 31, 46)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 9/14)
3
XCS_SYSTEM
XCSSYSTEM
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 9/14, 11/14, 12/14)
4
XVC_SCK
XSCK
VC_SO
SI
(SEE PAGE 4-19, 24, 25, 30, 31, 46, 54, 57)
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 9/14)
5
XRST_SYSTEM
XRST
(SEE PAGE 4-19, 24, 25, 31, 47)
TO VC-177 BOARD(9/14)
34
DA_STB
STB
(SEE PAGE 4-45)
TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 9/14, 11/14)
18
VC_SI
SO
(SEE PAGE 4-24, 25, 30, 31, 46, 54)
XRST
09

• Refer to page 4 – 13 for Printed Wiring Board.



5
6
7
8
9
10
11
12
13
14
L1151 10uH
R1152 1200
R1154 12k
R1155 8200
C1153 150p CH
C1151 0.01 B
R1151 2200
C1156 0.01
C1152 10 4V
R1157 82
R1153 390
R1156 1200
C1154 10 4V A
REC_RF
(D-14)
IC103
8-BIT A/D CONVERTER
IC103 CXD2301Q-T4
ADCK_CONT
PB_XREC
L1154 10uH
C1163 0.01
R0/P2.8
C1164 0.1 F
C1167 0.01 B
C1165 10 6.3V A
C1166 0.01 B
R2.3/P1.4
R0.7/P1.4
R0.8/P1.4
R1.7/P1.4
R1.1/P1.4
R1.9/P1.3
LINE
C1162 0.01 B
R1159 0
C1160 1 F 1608
C1161 0.01 B
R1160 680
C1168 0.01 B
FB1151 LL241
R1165 100
R1.3/P0
RFY9
RFY8
RFY7
RFY6
RFY5
RFY4
RFY3
RFY2
RFY1
R2.1/P1.7
R0.5/P0.8
R1.6/P1.2
(E-15)
IC102
VIDEO PROCESSOR
IC102 MB87B108DPFV-G-BND-ER
MEMO_HD
VIHD
R0/P1.5
R1.1/P0
R0/P2.8
R2.1/P0
SP/XLP
E/XL
PB/XREC
ADCKCONT
DOP
R1.1/P0
R1.3/P0
R1.8/P0
R0.6/P0
R2.2/P0
R0.6/P0
R0.7/P0
C1157 1 F 1608
C1173 1000p B
R1164 1k
XCSSYSTEM
RFC1
RFC2
RFC3
RFC4
RFC5
RFC6
RFC7
RFC8
BCK
DOC
XRST
XSCK
SO
SI
SYSV
Q1363 2SB1462-Q(TXE)
R1361 47K
C1366 1 F 1608
R1365 150K
R1366 1K
R1367 10K
Q1364 2SB1462-Q(TXE)
R1363 22K
(D-6) (D-6)
Q1363, 1364 AMP
C1361 0.022 B
Q1361 2SD2216-Q(TXE)
Q1362 2SD2216-Q(TXE)
R1368 100K
C1363 0.1 F 1608
R1364 47K
R1362 10K
R1370 2200
R1371 10K
(D-5) (D-5)
Q1361, 1362 CLK ERR AMP
⑨
⑩
⑪
⑫
⑬
⑭
⑮



13
14
15
16
17
18
19
20
21
A_3.2V
A_4.9V
REG_GND
SWP
SYS_V
RF_AGC_OUT
TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
35
A021
ZOOM_CONT
E/XL
REC_Y_RF
DOP
SP/XLP
PB/XREC
A027
RP_IR
A028
MT_Q
A029
DOC_DET
A030
MT_FO
A033
REC_L_CONT
A011
RF_AGC_CONT
REC_Y/MT_CONT
36
TO VC-177 BOARD(7/14) (SEE PAGE 4-41)
(SEE PAGE 4-54)
57
TO VC-177 BOARD(11/14)
A016
CFG_DUTY
37
TO VC-177 BOARD(10/14) (SEE PAGE 4-51)
A012
1.5M_DEV
A013
1.7M_DEV
A014
AU_BPF
A015
A_FADA
38
TO VC-177 BOARD(11/14) (SEE PAGE 4-54)
A018
VREF_PYRA
39
TO VC-177 BOARD(8/14) (SEE PAGE 4-43)
A020
V_ON
40
TO VC-177 BOARD(13/14) (SEE PAGE 4-60)
A023
AD_OFFSET
A032
ACC/RF_CONT
A026
FRQ_TUNE
11
TO VC-177 BOARD(1/14) (SEE PAGE 4-19)
A02
HALL_GAIN
A03
HALL_OFFSET
23
TO VC-177 BOARD(4/14) (SEE PAGE 4-30)
AGC_CONT_1
AGC_CONT_2
A025
IR_CONT
A010
ACC/RF_CONT
LINE
C_IN
TRAP_ADJ
41
TO VC-177 BOARD(12/14) (SEE PAGE 4-58)
IC108
M62370GP-650D
IC108 (E-8)
D/A CONVERTER (EVR)
L1154 10uH
L1301 10uH
C1302 22 6.3V TA B
C1301 0.01 B
A034
A033
A032
A030
A029
A028
2.5
1
0.4
1.8
R0/P0.5
3.4
R2.6/P2.1
4.8
1.5
4.8
R3.7/P4.4
2.3
4.5
1.7
0.3
0.9
3.3
3.4
2.2
1.4
A027
A026
A025
A024
A023
A021
A018
A017
A016
A02
A03
3.1
2.4
A06
A07
A08
A09
A010
A011
3.4
2.6
1.5
0
1.9
4
0.1
3
0
4.8
1.3
1.6
3
0
A012
A013
A014
A015
SI
C1163 0.01
C1164 0.1 F
C1167 0.01 B
C1165 10 6.3V A
C1166 0.01 B
15
14
2.8
1.8
0.7
1.8
4.8
1.8
LINE
R1163 8200
4.8
Q1151 2SD2216-Q(TXE)
(E-14)
Q1151 BUFFER
R0/P1.3
R2.1/P1.7
C1168 0.01 B
R1160 680
R1162 12k
C1162 0.01 B
Q1363 2SB1462-Q(TXE)
R1366 1k
R1367 10k
2
1.5
1.9
0
0.8
Q1364 2SB1462-Q(TXE)
(D-6) (D-6)
Q1363, 1364 AMP
R1368 100k
C1363 0.1 F 1608
R1370 2200
R1371 10k
LINE

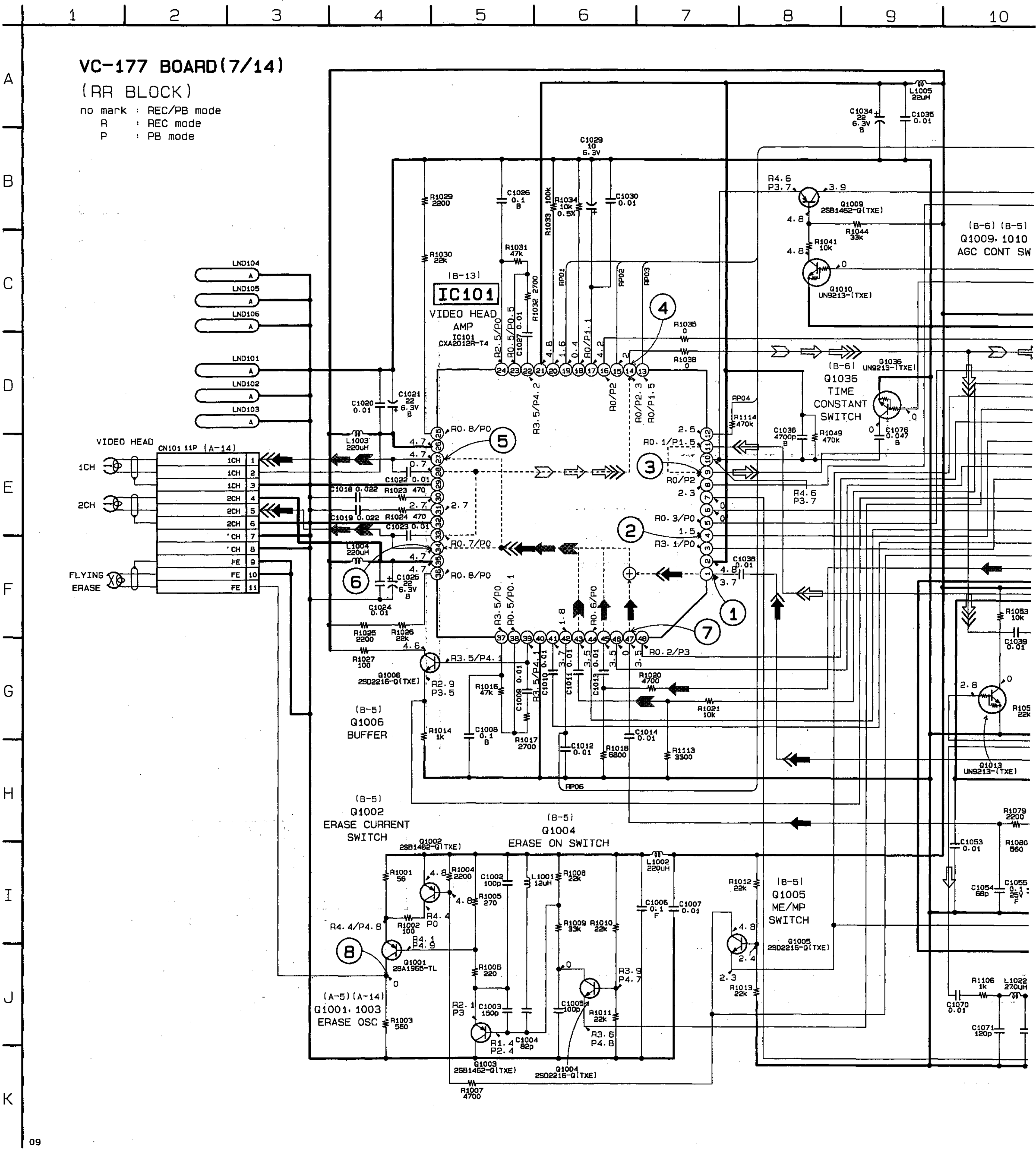
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡≫	
PB		⇨≫	

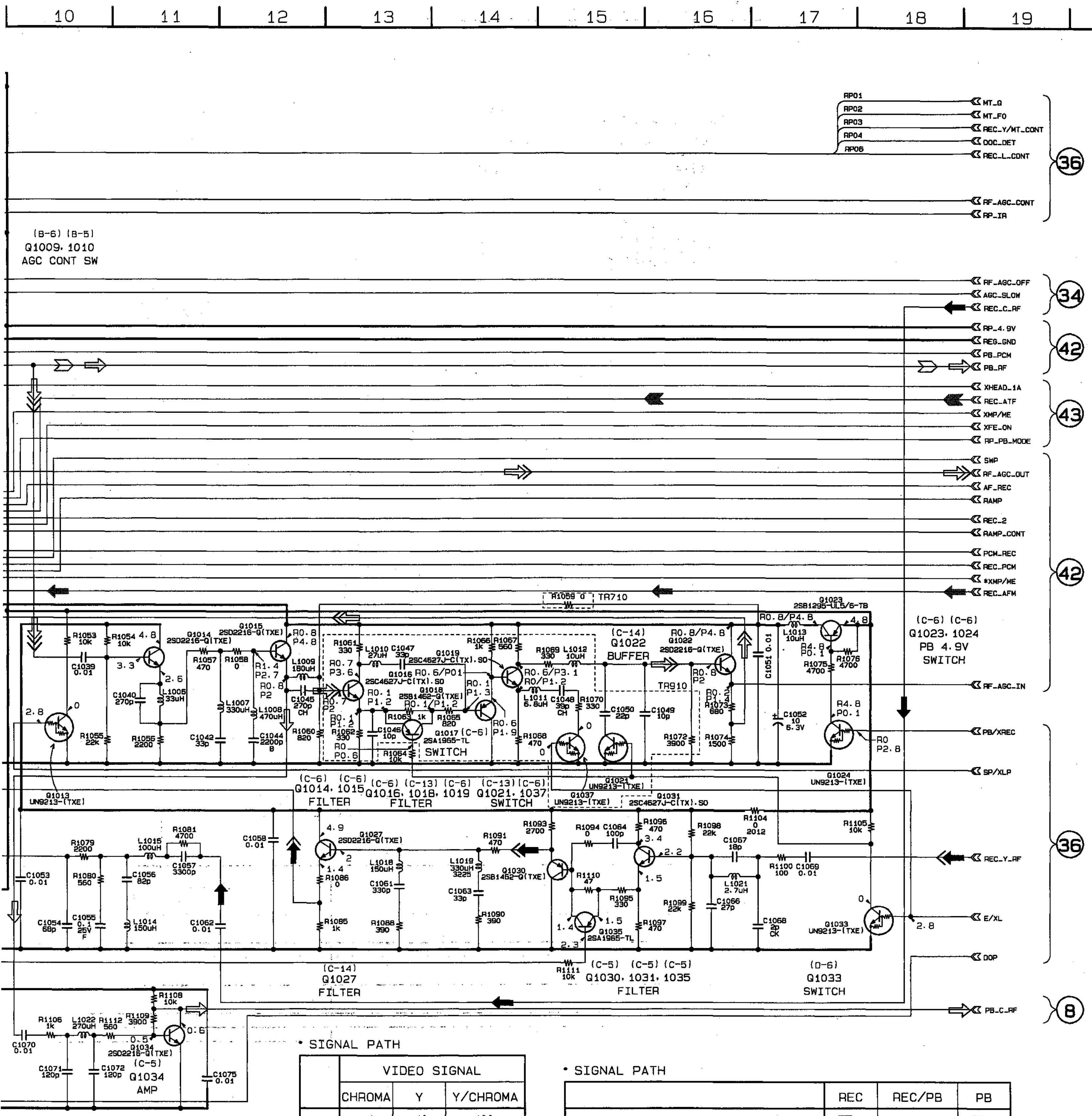
VC-177 (REC/PB HEAD AMP) SCHEMATIC DIAGRAM

• Refer to page 4 – 13 for Printed Wiring Board.

— Ref No. VC-177 BOARD: 10,000 series —



1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(7/14)
(RR BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
(B-13)
IC101
VIDEO HEAD AMP
IC101 CXA2012R-T4
LND104
LND105
LND106
LND101
LND102
LND103
VIDEO HEAD
1CH
2CH
FLYING ERASE
CN101 11P (A-14)
1CH
1CH
1CH
2CH
2CH
2CH
'CH
'CH
FE
FE
FE
L1003 220uH
L1004 220uH
C1020 0.01
C1021 22 6.3V B
C1022 0.01
C1018 0.022
R1023 470
C1019 0.022
R1024 470
C1023 0.01
C1024 0.01
C1025 22 6.3V B
R1025 2200
R1026 22k
R1027 100
R1029 2200
R1030 22k
C1026 0.1 B
R1031 47k
C1027 0.01
R1032 2700
R1033 100k
R1034 10k 0.5%
C1029 10 6.3V
C1030 0.01
RP01
RP02
RP03
RP04
RP06
R1035 0
R1038 0
R1114 470k
C1036 4700p B
R1049 470k
C1076 0.047 B
C1038 0.01
C1034 22 6.3V B
C1035 0.01
L1005 22uH
Q1009 2SB1462-Q(TXE)
R1044 33k
R1041 10k
Q1010 UN9213-(TXE)
(B-6) (B-5)
Q1009, 1010
AGC CONT SW
(B-6)
Q1036
TIME CONSTANT SWITCH
Q1036 UN9213-(TXE)
R4.6
P3.7
3.9
4.8
R0.8/P0
R0.7/P0
R0.1/P1.5
R0/P2
R0.3/P0
R3.1/P0
R0.2/P3
R3.5/P4.1
R2.9
P3.5
Q1006 2SD2216-Q(TXE)
(B-5)
Q1006
BUFFER
R1014 1k
C1008 0.1 B
R1016 47k
C1009 0.01
R1017 2700
C1010 0.01
C1011 0.01
C1012 0.01
C1013 0.01
R1018 6800
C1014 0.01
R1113 3300
R1020 4700
R1021 10k
R1053 10k
C1039 0.01
Q1013 UN9213-(TXE)
R105 22k
(B-5)
Q1002
ERASE CURRENT SWITCH
Q1002 2SB1462-Q(TXE)
(B-5)
Q1004
ERASE ON SWITCH
R1001 56
R1004 2200
R1005 270
R1002 100
C1002 100p
L1001 12uH
R1008 22k
L1002 220uH
C1006 0.1 F
C1007 0.01
R1009 33k
R1010 22k
R1006 220
C1003 150p
C1004 82p
C1005 100p
R1011 22k
R1003 560
R1007 4700
Q1001 2SA1965-TL
Q1003 2SB1462-Q(TXE)
Q1004 2SD2216-Q(TXE)
(A-5) (A-14)
Q1001, 1003
ERASE OSC
R4.4/P4.8
R1012 22k
R1013 22k
(B-5)
Q1005
ME/MP SWITCH
Q1005 2SD2216-Q(TXE)
R1079 2200
C1053 0.01
R1080 560
C1054 68p
C1055 0.1 25V F
R1106 1k
L1022 270uH
C1070 0.01
C1071 120p
①
②
③
④
⑤
⑥
⑦
⑧
09



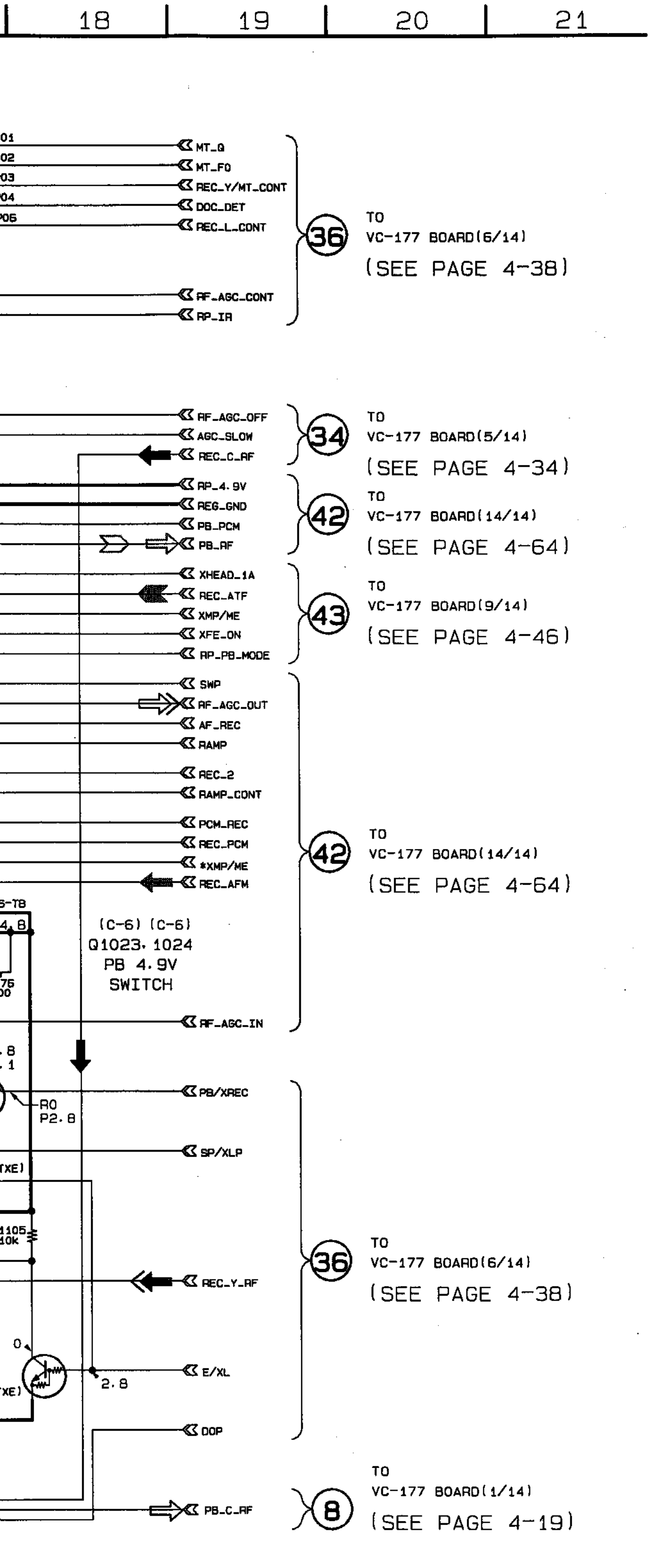
10
11
12
13
14
15
16
17
18
19
RP01
RP02
RP03
RP04
RP06
MT_G
MT_FO
REC_Y/MT_CONT
DOC_DET
REC_L_CONT
36
RF_AGC_CONT
RP_IR
(B-6) (B-5)
Q1009, 1010
AGC CONT SW
RF_AGC_OFF
AGC_SLOW
REC_C_RF
34
RP_4.9V
REG_GND
PB_PCM
PB_RF
42
XHEAD_1A
REC_ATF
XMP/ME
XFE_ON
RP_PB_MODE
43
SWP
RF_AGC_OUT
AF_REC
RAMP
REC_2
RAMP_CONT
PCM_REC
REC_PCM
*XMP/ME
REC_AFM
42
R1059 0
TR710
Q1023
2SB1295-UL5/6-TB
(C-6) (C-6)
Q1023, 1024
PB 4.9V
SWITCH
RF_AGC_IN
PB/XREC
SP/XLP
Q1024
UN9213-(TXE)
(C-14)
Q1022
BUFFER
2SD2216-Q(TXE)
TR910
Q1013
UN9213-(TXE)
Q1014
2SD2216-Q(TXE)
Q1015
2SD2216-Q(TXE)
Q1016
2SC4627J-C(TX).SO
Q1018
2SB1462-Q(TXE)
Q1019
2SC4627J-C(TX).SO
Q1017 (C-6)
2SA1965-TL
SWITCH
Q1021
UN9213-(TXE)
Q1037
UN9213-(TXE)
Q1031
2SC4627J-C(TX).SO
(C-6) (C-6)
Q1014, 1015
FILTER
(C-6) (C-13) (C-6)
Q1016, 1018, 1019
FILTER
(C-13) (C-6)
Q1021, 1037
SWITCH
Q1027
2SD2216-Q(TXE)
Q1030
2SB1462-Q(TXE)
Q1035
2SA1965-TL
REC_Y_RF
36
E/XL
Q1033
UN9213-(TXE)
DOP
(C-14)
Q1027
FILTER
(C-5) (C-5) (C-5)
Q1030, 1031, 1035
FILTER
(D-6)
Q1033
SWITCH
PB_C_RF
8
Q1034
2SD2216-Q(TXE)
(C-5)
Q1034
AMP
R1053 10k
R1054 10k
C1039 0.01
C1040 270p
L1006 33uH
R1055 22k
R1056 2200
R1057 470
R1058 0
L1007 330uH
L1008 470uH
C1042 33p
C1044 2200p B
L1009 180uH
C1045 270p CH
R1060 820
R1061 330
L1010 27uH
C1047 33p
R1062 330
C1046 10p
R1063 1k
R1064 10k
R1065 820
R1066 1k
R1067 560
R1068 470
R1069 330
L1012 10uH
L1011 6.8uH
C1048 39p CH
R1070 330
C1050 22p
C1049 10p
C1051 0.01
R1072 3900
R1073 680
R1074 1500
L1013 10uH
R1075 4700
R1076 4700
C1052 10 6.3V
R1079 2200
R1080 560
R1081 4700
L1015 100uH
C1056 82p
C1057 3300p
C1053 0.01
C1054 68p
C1055 0.1 25V F
L1014 150uH
C1062 0.01
C1058 0.01
R1085 1k
R1086 0
L1018 150uH
C1061 330p
R1088 390
L1019 330uH 3225
C1063 33p
R1090 390
R1091 470
R1093 2700
R1094 0
C1064 100p
R1096 470
R1110 47
R1095 330
R1097 470
R1111 10k
R1098 22k
R1104 0 2012
C1067 18p
L1021 2.7uH
C1066 27p
R1099 22k
R1100 100
C1069 0.01
R1105 10k
C1068 20 CK
R1108 10k
R1109 3900
R1106 1k
L1022 270uH
R1112 560
C1070 0.01
C1071 120p
C1072 120p
C1075 0.01

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡≫	➡⋙
PB	⇨	⇨≫	⇨⋙

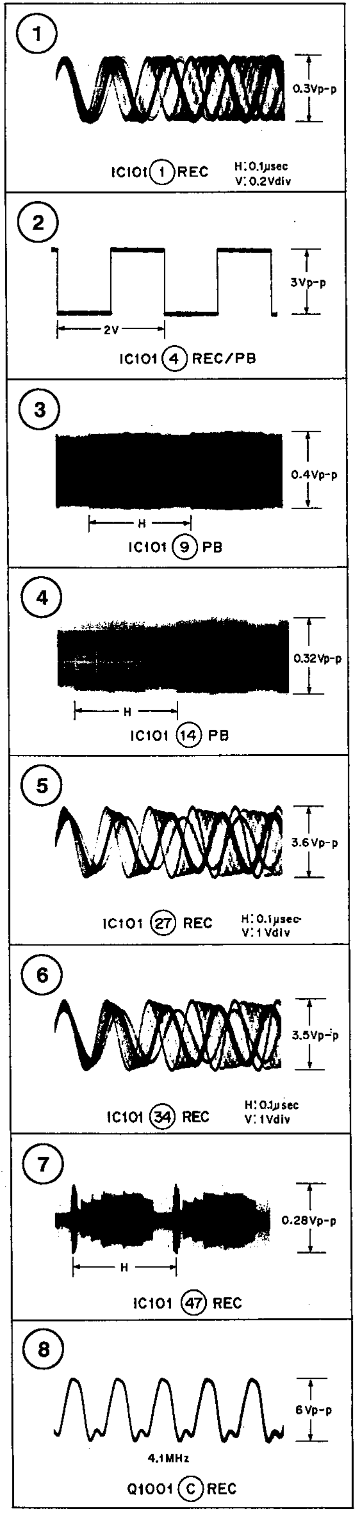
• SIGNAL PATH

	REC	REC/PB	PB
Ref. signal	➤		▷

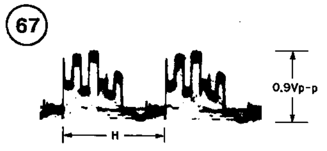

18
19
20
21
MT_Q
MT_FO
REC_Y/MT_CONT
DOC_DET
REC_L_CONT
RF_AGC_CONT
RP_IR
36 TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
RF_AGC_OFF
AGC_SLOW
REC_C_RF
34 TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
RP_4.9V
REG_GND
PB_PCM
PB_RF
42 TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
XHEAD_1A
REC_ATF
XMP/ME
XFE_ON
RP_PB_MODE
43 TO VC-177 BOARD(9/14) (SEE PAGE 4-46)
SWP
RF_AGC_OUT
AF_REC
RAMP
REC_2
RAMP_CONT
PCM_REC
REC_PCM
*XMP/ME
REC_AFM
RF_AGC_IN
42 TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
(C-6) (C-6)
Q1023, 1024
PB 4.9V
SWITCH
PB/XREC
SP/XLP
REC_Y_RF
E/XL
DOP
36 TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
PB_C_RF
8 TO VC-177 BOARD(1/14) (SEE PAGE 4-19)
RO
P2.8
2.8
0
XE)
4105
10k

EC	REC/PB	PB
➡		⊳

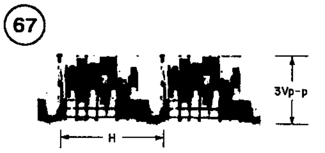
VC-177 BOARD (RR BLOCK)



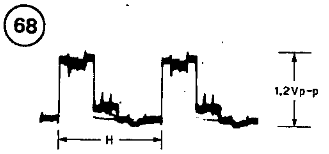
VC-177 BOARD (PY BLOCK)



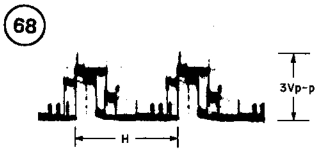
IC800 ⑭ CAMERA REC



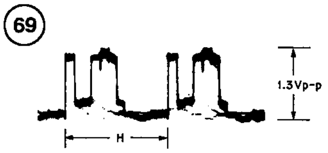
IC800 ⑭ REC/PB



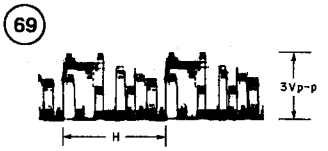
IC800 ⑲ CAMERA REC



IC800 ⑲ REC/PB



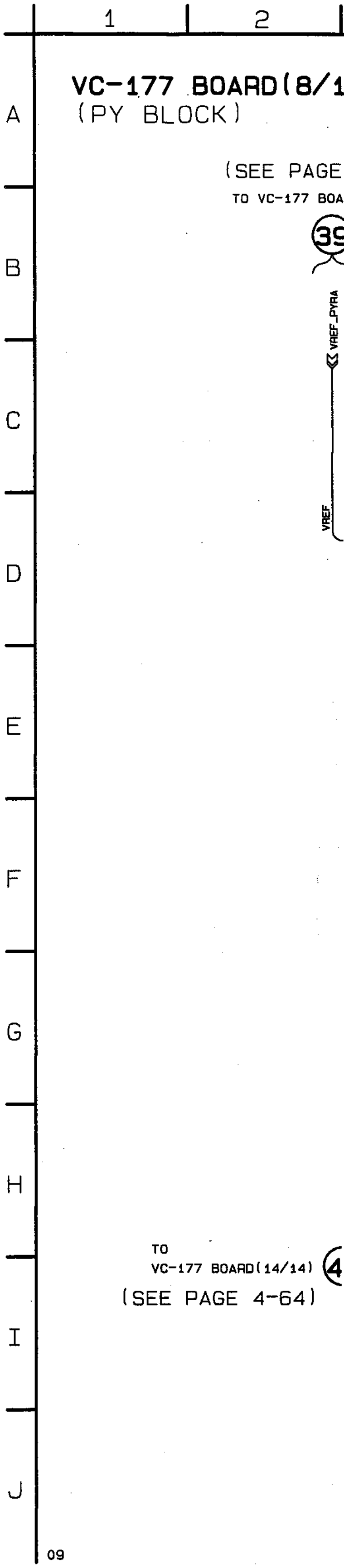
IC800 ㉓ CAMERA REC



IC800 ㉓ REC/PB

VC-177 (VIDEO PROCESS (2))

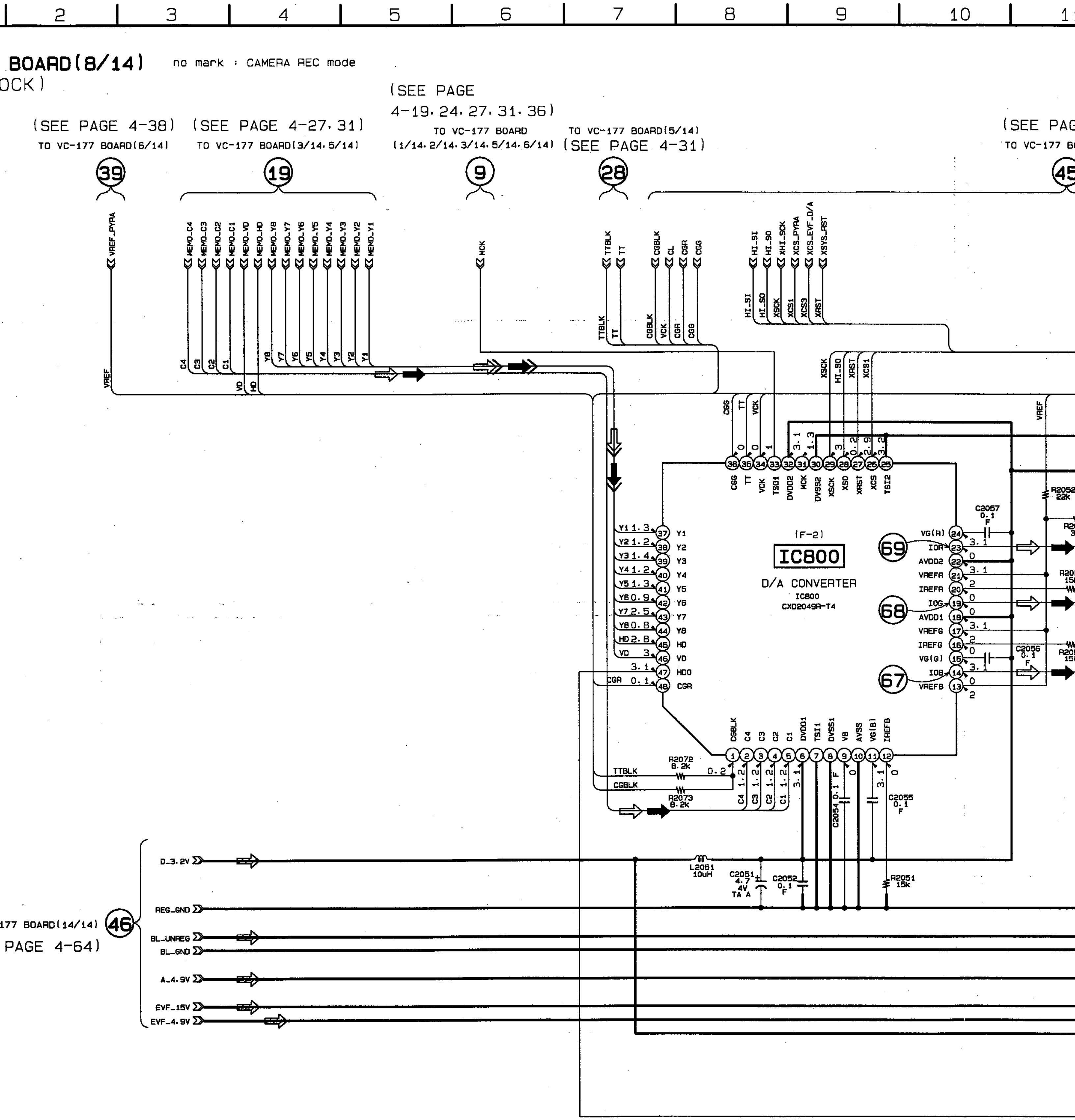
— Ref No. VC-177 BOARD: 10,000 series

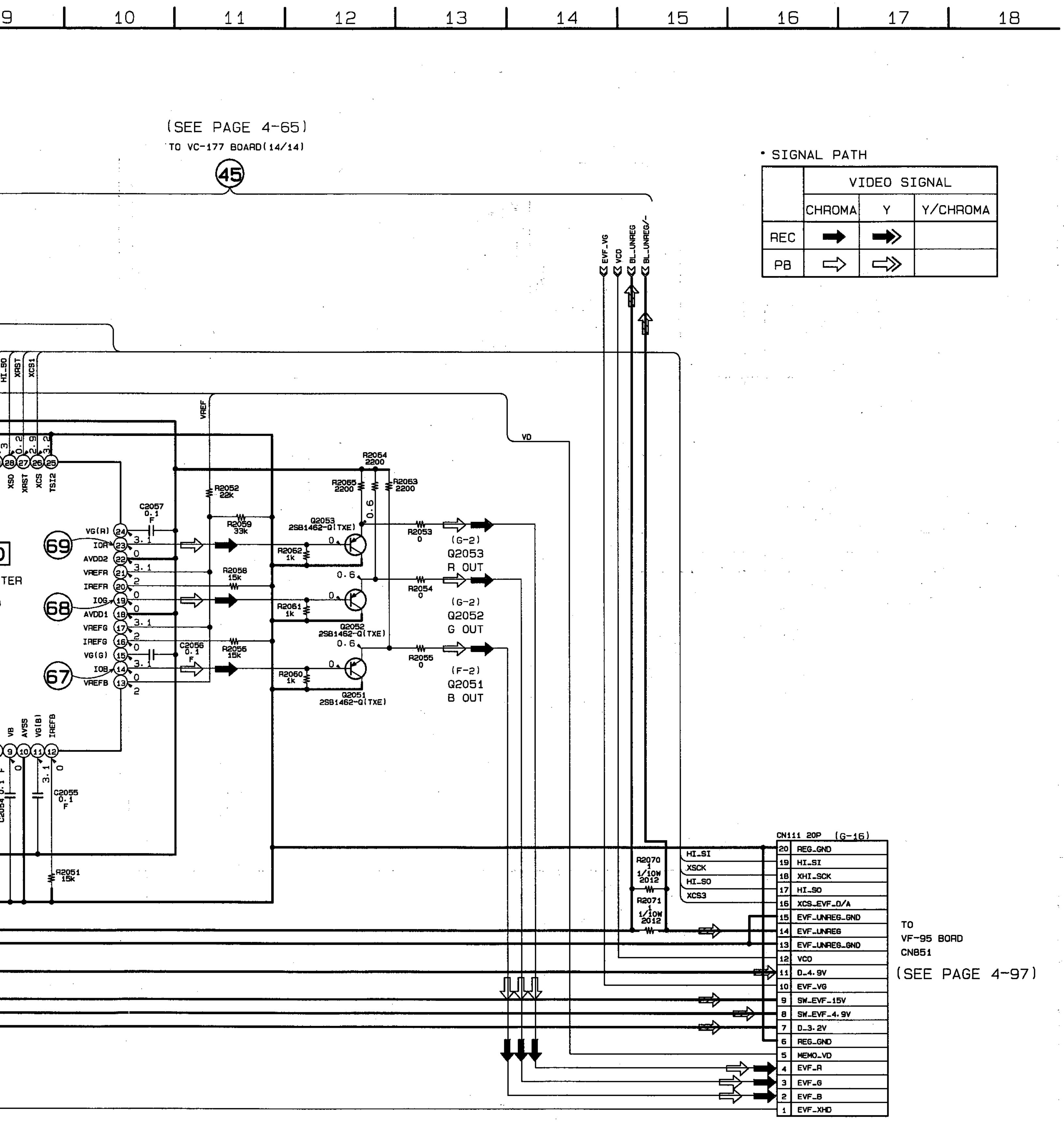

1
2
A
B
C
D
E
F
G
H
I
J
VC-177 BOARD(8/1
(PY BLOCK)
(SEE PAGE
TO VC-177 BOA
39
VREF_PYRA
VREF
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-64)
09

PROCESS (2)) SCHEMATIC DIAGRAM

• Refer to page 4 – 13 for Printed Wiring Board.

ARD: 10,000 series —


2
3
4
5
6
7
8
9
10
BOARD (8/14)
OCK)
no mark : CAMERA REC mode
(SEE PAGE 4-38)
TO VC-177 BOARD (6/14)
39
VREF_PYRA
(SEE PAGE 4-27, 31)
TO VC-177 BOARD (3/14, 5/14)
19
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
MEMO_VD
MEMO_HD
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
(SEE PAGE 4-19, 24, 27, 31, 36)
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14)
9
MCK
TO VC-177 BOARD (5/14)
(SEE PAGE 4-31)
28
TTBLK
TT
CGBLK
CL
CGR
CGG
HI_SI
HI_SO
XHI_SCK
XCS_PYRA
XCS_EVF_D/A
XSYS_RST
XSCK
XCS1
XCS3
XRST
VCK
(SEE PAG
TO VC-177 B
45
VREF
(F-2)
IC800
D/A CONVERTER
IC800
CXD2049R-T4
69
68
67
VG(R)
IOR
AVDD2
VREFR
IREFR
IOG
AVDD1
VREFG
IREFG
VG(G)
IOB
VREFB
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
HD
VD
HDO
CGR
CGG
TT
VCK
TSO1
DVDD2
MCK
DVSS2
XSCK
XSO
XRST
XCS
TSI2
CGBLK
C4
C3
C2
C1
DVDD1
TSI1
DVSS1
VB
AVSS
VG(B)
IREFB
R2072
8.2k
R2073
8.2k
C2054 0.1 F
C2055
0.1
F
C2057
0.1
F
C2056
0.1
F
R2052
22k
L2051
10uH
C2051
4.7
4V
TA A
C2052
0.1
F
R2051
15k
D_3.2V
REG_GND
BL_UNREG
BL_GND
A_4.9V
EVF_15V
EVF_4.9V
177 BOARD (14/14)
PAGE 4-64)
46



9
10
11
12
13
14
15
16
17
18
(SEE PAGE 4-65)
TO VC-177 BOARD(14/14)
45
EVF_VG
VCO
BL_UNREG
BL_UNREG/-
HI_SO
XRST
XCS1
VREF
VD
XSO
XRST
XCS
TSI2
C2057
0.1
F
VG(R)
IOR
AVDD2
VREFR
IREFR
IOG
AVDD1
VREFG
IREFG
VG(G)
IOB
VREFB
69
68
67
TER
R2052
22k
R2059
33k
R2058
15k
R2056
15k
C2056
0.1
F
R2064
2200
R2065
2200
R2063
2200
Q2053
2SB1462-Q(TXE)
Q2052
2SB1462-Q(TXE)
Q2051
2SB1462-Q(TXE)
R2062
1k
R2061
1k
R2060
1k
R2053
0
R2054
0
R2055
0
(G-2)
Q2053
R OUT
(G-2)
Q2052
G OUT
(F-2)
Q2051
B OUT
VB
AVSS
VG(B)
IREFB
C2054 0.1 F
C2055
0.1
F
R2051
15k
R2070
1
1/10W
2012
R2071
1
1/10W
2012
HI_SI
XSCK
HI_SO
XCS3
CN111 20P (G-16)
20 REG_GND
19 HI_SI
18 XHI_SCK
17 HI_SO
16 XCS_EVF_D/A
15 EVF_UNREG_GND
14 EVF_UNREG
13 EVF_UNREG_GND
12 VCO
11 D_4.9V
10 EVF_VG
9 SW_EVF_15V
8 SW_EVF_4.9V
7 D_3.2V
6 REG_GND
5 MEMO_VD
4 EVF_R
3 EVF_G
2 EVF_B
1 EVF_XHD
TO
VF-95 BORD
CN851
(SEE PAGE 4-97)

- SIGNAL PATH

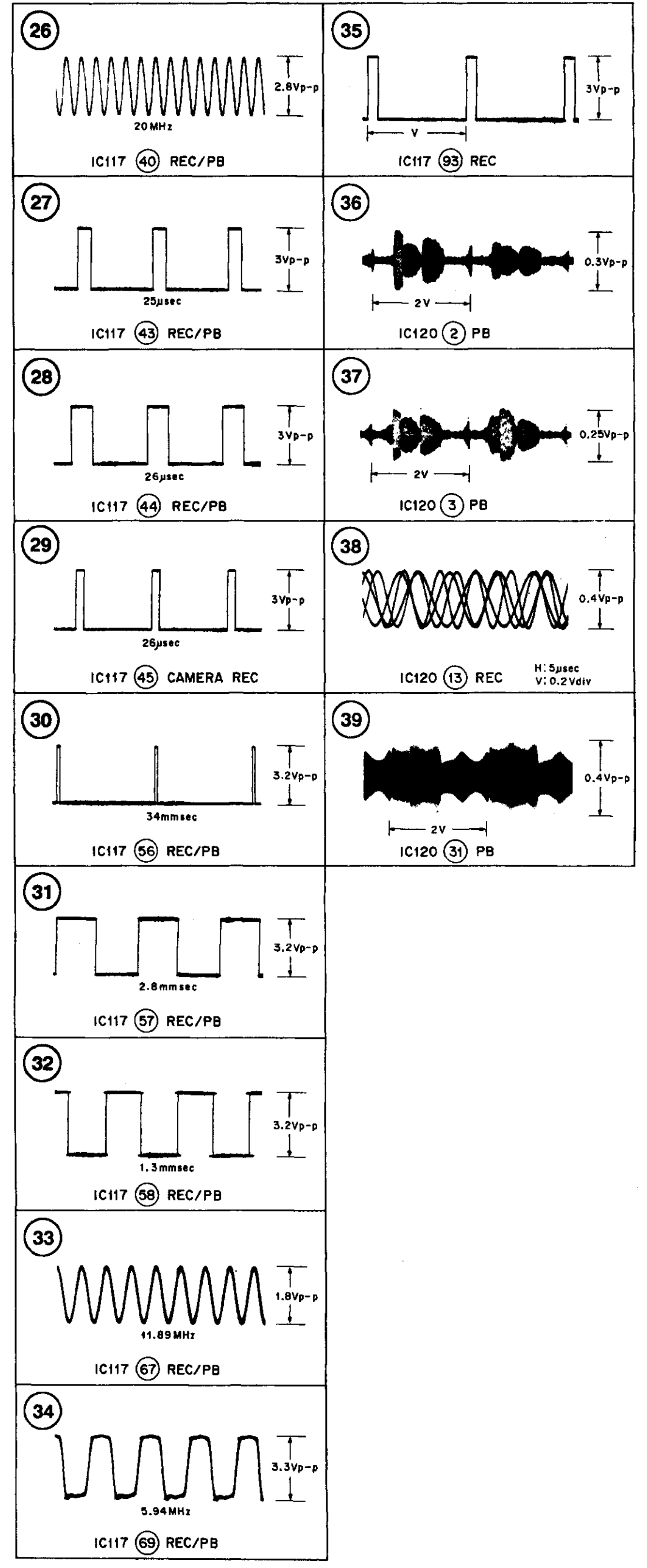
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	
PB	⇨	⇨⇨	

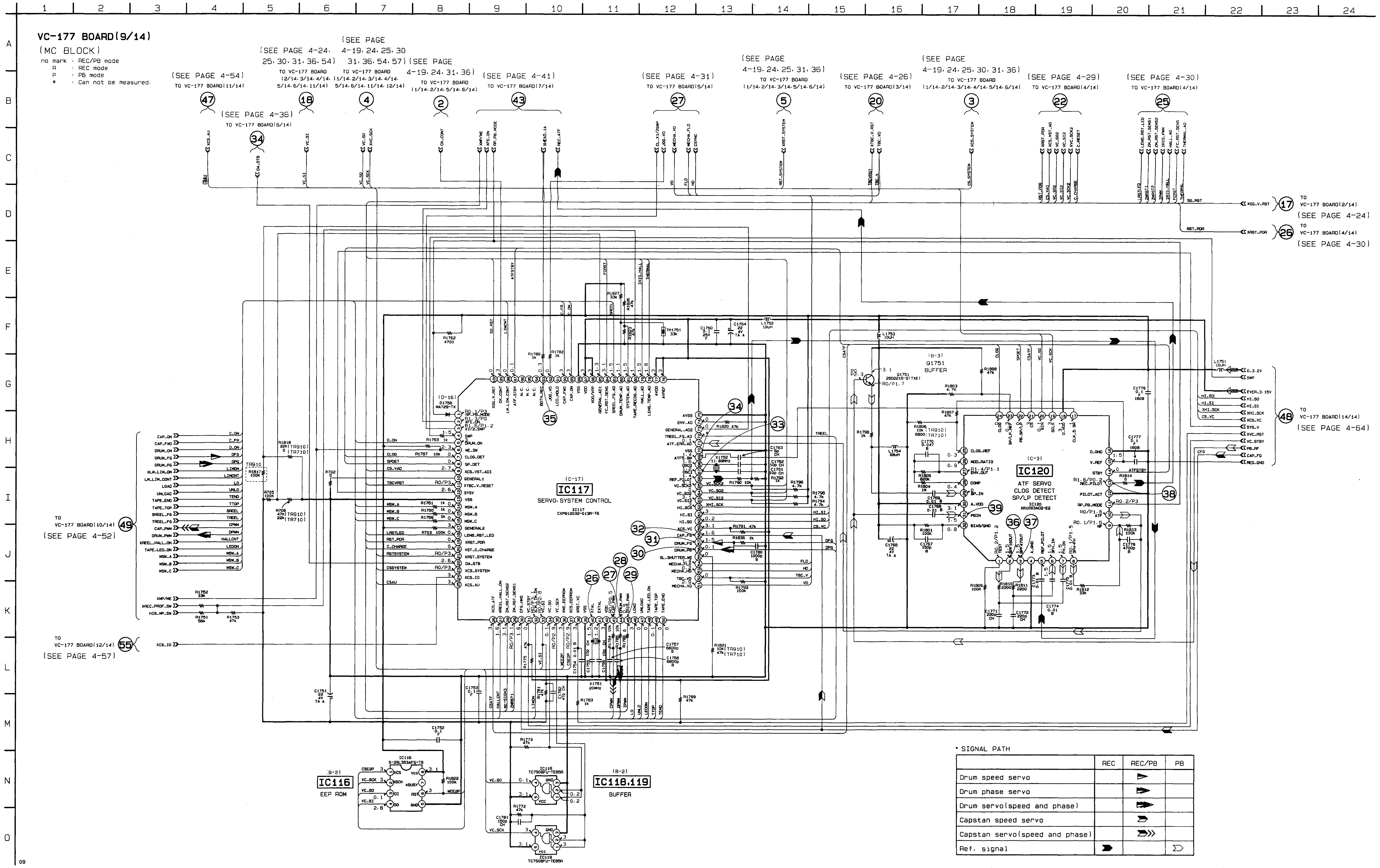
VC-177 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.

VC-177 BOARD (MC BLOCK)




VC-177 BOARD(9/14)
(MC BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
* : Can not be measured.
(SEE PAGE 4-54)
TO VC-177 BOARD(11/14)
(SEE PAGE 4-36)
TO VC-177 BOARD(6/14)
(SEE PAGE 4-41)
(SEE PAGE 4-31)
TO VC-177 BOARD(5/14)
(SEE PAGE 4-26)
TO VC-177 BOARD(3/14)
(SEE PAGE 4-29)
TO VC-177 BOARD(4/14)
(SEE PAGE 4-30)
TO VC-177 BOARD(2/14)
(SEE PAGE 4-24)
TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
TO VC-177 BOARD(10/14)
(SEE PAGE 4-52)
TO VC-177 BOARD(12/14)
(SEE PAGE 4-57)
IC117
SERVO, SYSTEM CONTROL
IC120
ATF SERVO
CLOG DETECT
SP/LP DETECT
Q1751
BUFFER
IC116
EEP ROM
IC118,119
BUFFER
X1751
20MHz

• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⇨	
Drum servo(speed and phase)		⇛	
Capstan speed servo		➢	
Capstan servo(speed and phase)		➢»	
Ref. signal	➤		▷

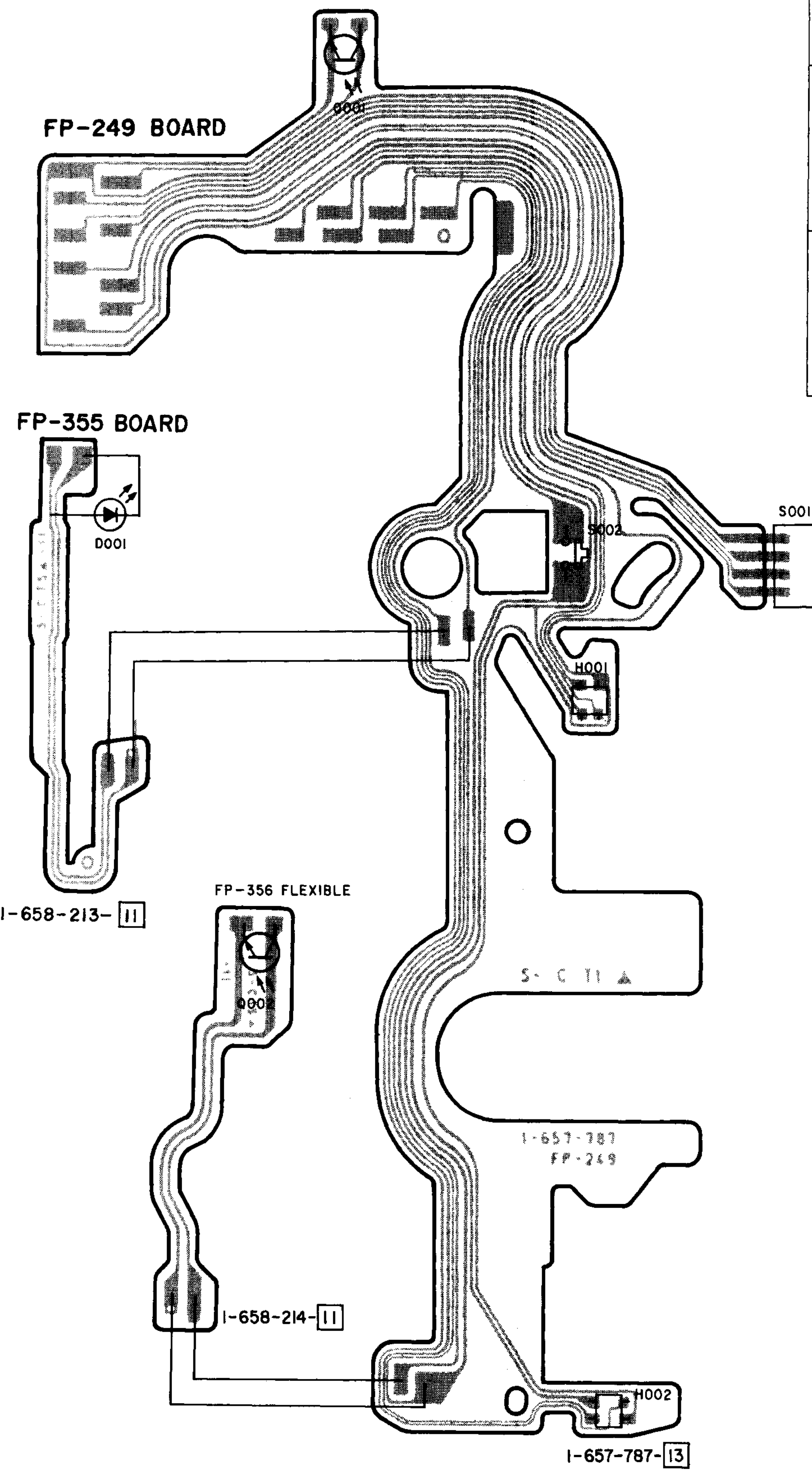
FP-249 (TAPE SENSOR) PRINTED WIRING BOARD

FP-355 (TAPE LED) PRINTED WIRING BOARD

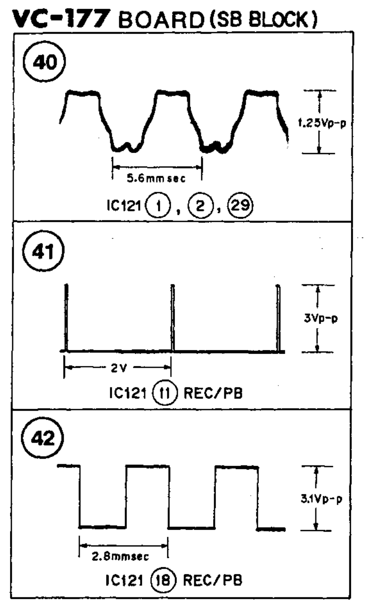
— Ref No. FP-355 BOARD: 8,000 series —

FP-356 (TAPE END SENSOR) PRINTED WIRING BOARD

— Ref No. FP-356 BOARD: 8,000 series —


FP-249 BOARD
FP-355 BOARD
D001
S001
H001
Q001
S002
H002
Q002
FP-356 FLEXIBLE
1-658-213-11
1-658-214-11
1-657-787
FP-249
1-657-787-13
S- C 11

VC-177 BOARD (SB BLOCK)



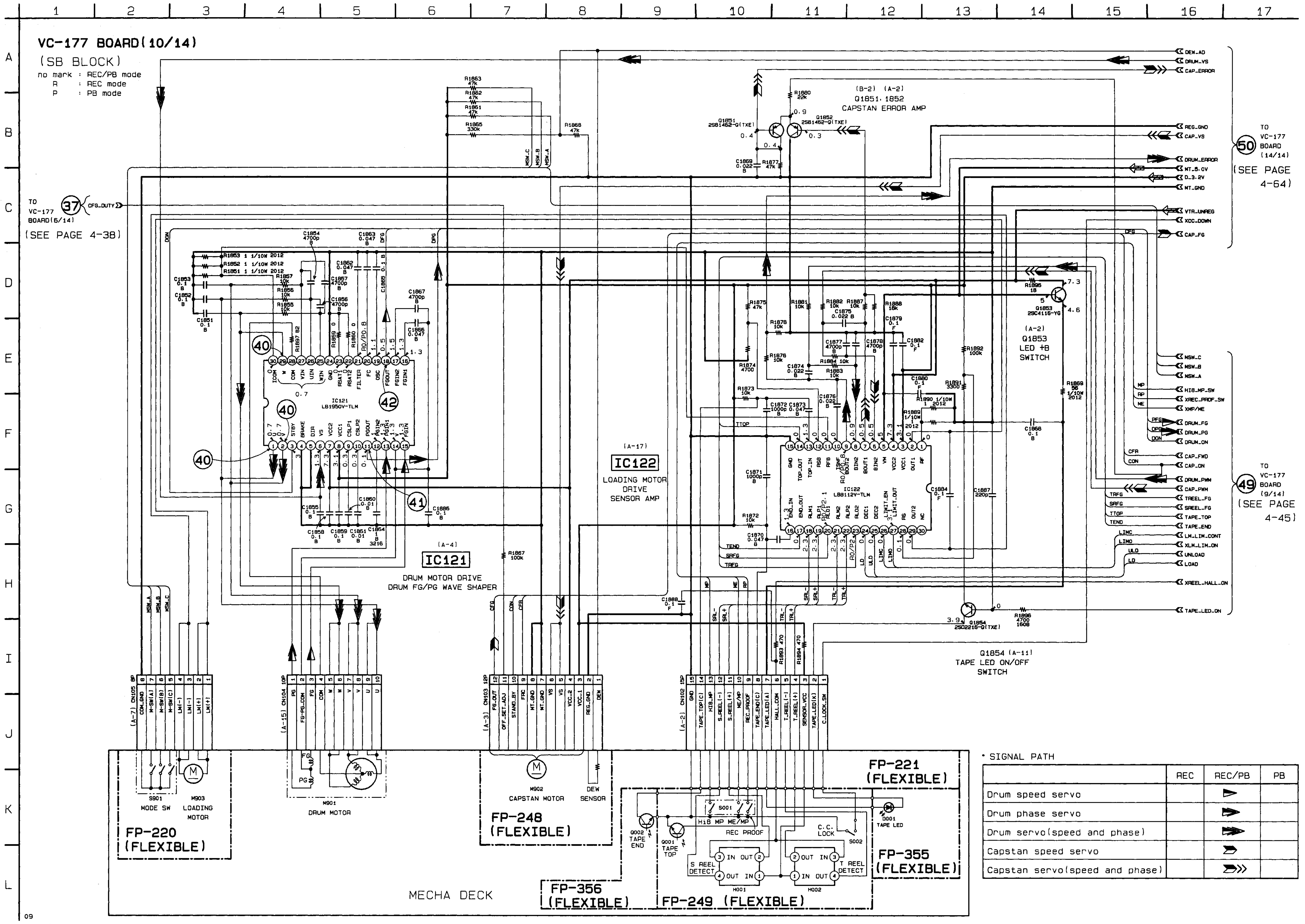
SERVO, TAPE SENSOR, TAPE LED, TAPE END SENSOR

VC-177 (10/14), FP-249, FP-355, FP-356

VC-177 (SERVO), FP-249 (TAPE SENSOR), FP-355 (TAPE LED), FP-356 (TAPE END SENSOR) SCHEMATIC DIAGRAMS

— Ref No. VC-177 BOARD: 10,000 series, FP-355, FP-356 BOARDS: 8,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.


VC-177 BOARD(10/14)
(SB BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
TO VC-177 BOARD(6/14)
37
(SEE PAGE 4-38)
TO VC-177 BOARD (14/14)
50
(SEE PAGE 4-64)
TO VC-177 BOARD (9/14)
49
(SEE PAGE 4-45)
IC121
DRUM MOTOR DRIVE
DRUM FG/PG WAVE SHAPER
IC122
LOADING MOTOR DRIVE
SENSOR AMP
Q1851, 1852
CAPSTAN ERROR AMP
Q1853
LED +B SWITCH
Q1854
TAPE LED ON/OFF SWITCH
FP-220 (FLEXIBLE)
S901 MODE SW
M903 LOADING MOTOR
M901 DRUM MOTOR
FP-248 (FLEXIBLE)
M902 CAPSTAN MOTOR
DEW SENSOR
FP-221 (FLEXIBLE)
FP-355 (FLEXIBLE)
FP-356 (FLEXIBLE)
FP-249 (FLEXIBLE)
MECHA DECK
H18 MP ME/HP
REC PROOF
C.C. LOCK
Q002 TAPE END
Q001 TAPE TOP
S REEL DETECT
T REEL DETECT
D001 TAPE LED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K L

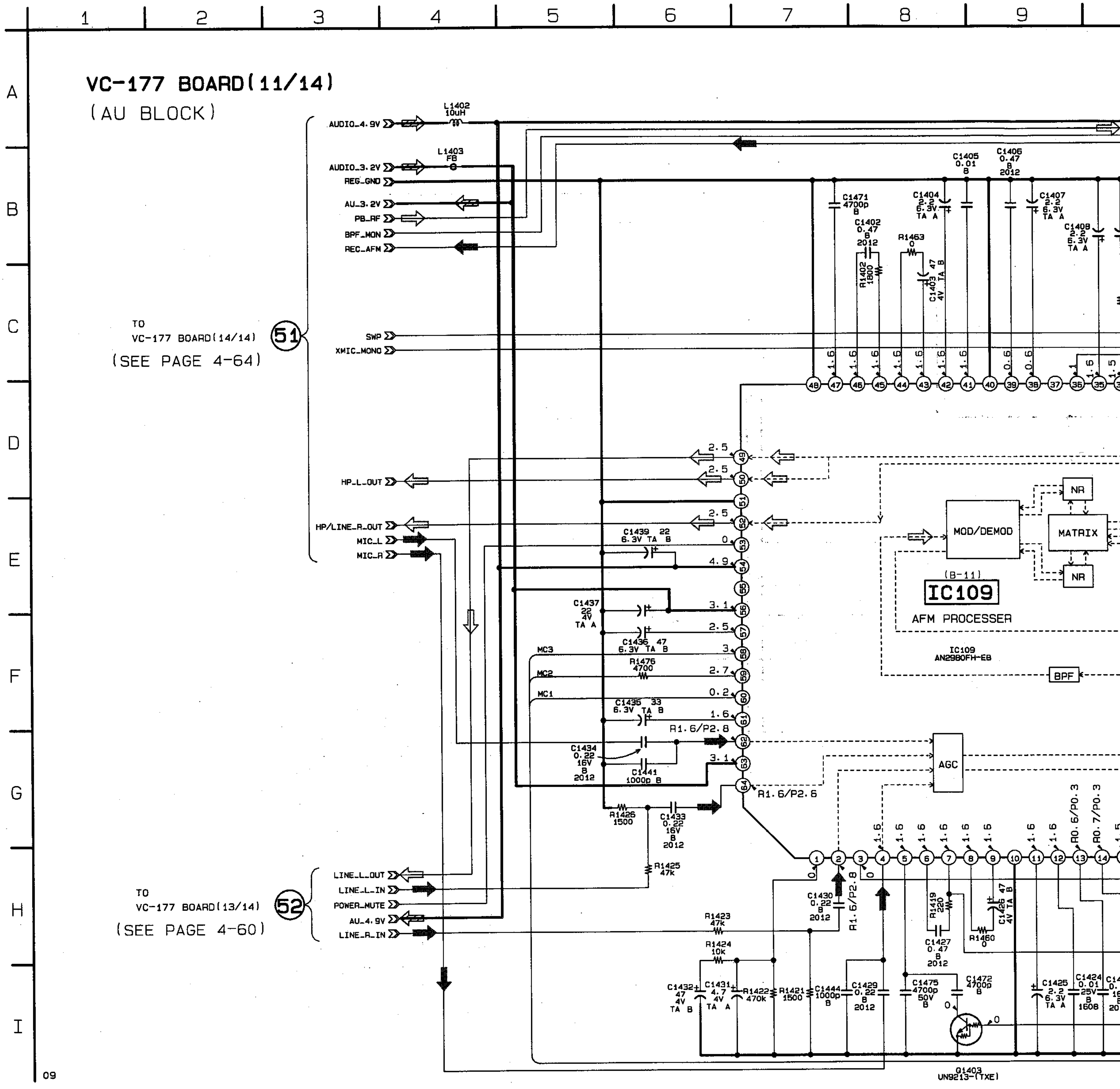
• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▶	
Drum servo(speed and phase)		▶▶	
Capstan speed servo		➢	
Capstan servo(speed and phase)		➢»	

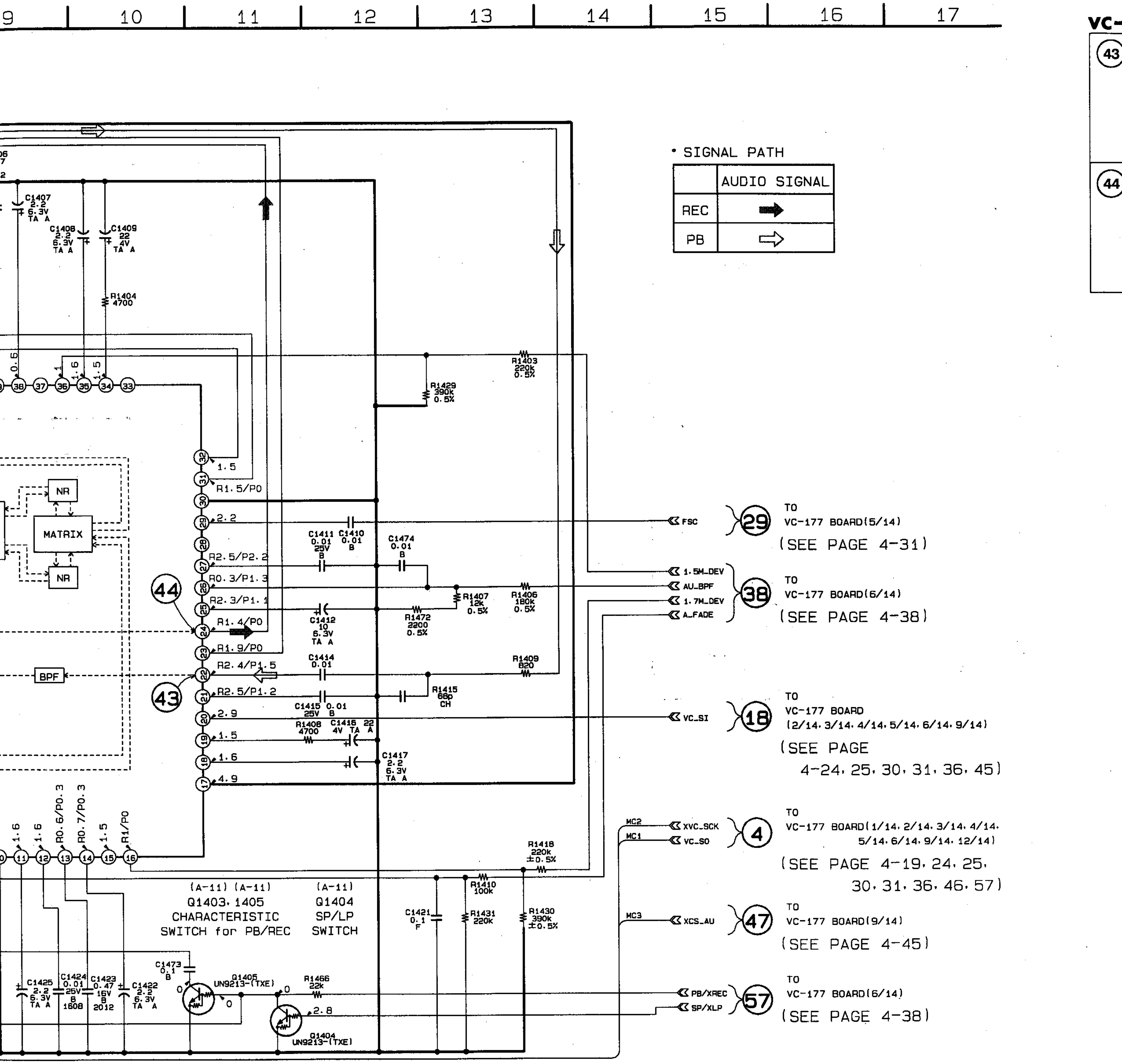
VC-177 (AUDIO) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
VC-177 BOARD(11/14)
(AU BLOCK)
TO
VC-177 BOARD(14/14)
51
(SEE PAGE 4-64)
TO
VC-177 BOARD(13/14)
52
(SEE PAGE 4-60)
AUDIO_4.9V
AUDIO_3.2V
REG_GND
AU_3.2V
PB_RF
BPF_MON
REC_AFM
SWP
XMIC_MONO
HP_L_OUT
HP/LINE_R_OUT
MIC_L
MIC_R
LINE_L_OUT
LINE_L_IN
POWER_MUTE
AU_4.9V
LINE_R_IN
L1402
10uH
L1403
FB
C1405
0.01
B
C1406
0.47
B
2012
C1471
4700p
B
C1404
2.2
6.3V
TA A
C1407
2.2
6.3V
TA A
C1402
0.47
B
2012
R1463
0
C1408
2.2
6.3V
TA A
R1402
1800
C1403 47
4V TA B
MOD/DEMOD
MATRIX
NR
NR
(B-11)
IC109
AFM PROCESSER
IC109
AN2980FH-EB
BPF
AGC
C1439 22
6.3V TA B
C1437
22
4V
TA A
C1436 47
6.3V TA B
R1476
4700
C1435 33
6.3V TA B
C1434
0.22
16V
B
2012
C1441
1000p B
R1426
1500
C1433
0.22
16V
B
2012
R1425
47k
MC3
MC2
MC1
2.5
2.5
2.5
0
4.9
3.1
2.5
3
2.7
0.2
1.6
R1.6/P2.8
3.1
R1.6/P2.6
R1.6/P2.8
R0.6/P0.3
R0.7/P0.3
C1430
0.22
B
2012
R1423
47k
R1424
10k
C1432
47
4V
TA B
C1431
4.7
4V
TA A
R1422
470k
R1421
1500
C1444
1000p
B
C1429
0.22
B
2012
R1419
220
C1427
0.47
B
2012
R1460
0
C1426 47
4V TA B
C1475
4700p
50V
B
C1472
4700p
B
C1425
2.2
6.3V
TA A
C1424
0.01
25V
B
1608
Q1403
UN9213-(TXE)
09

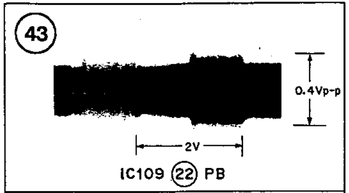

9
10
11
12
13
14
15
16
17
VC-
43
44
C1407 2.2 6.3V TA A
C1408 2.2 6.3V TA A
C1409 22 4V TA A
R1404 4700
R1403 220k 0.5%
R1429 390k 0.5%
NR
MATRIX
NR
BPF
1.5
R1.5/P0
2.2
R2.5/P2.2
R0.3/P1.3
R2.3/P1.1
R1.4/P0
R1.9/P0
R2.4/P1.5
R2.5/P1.2
2.9
1.5
1.6
4.9
C1411 0.01 25V B
C1410 0.01 B
C1474 0.01 B
R1407 12k 0.5%
R1406 180k 0.5%
C1412 10 6.3V TA A
R1472 2200 0.5%
C1414 0.01
R1409 820
R1415 68p CH
C1415 0.01 25V B
R1408 4700
C1416 22 4V TA A
C1417 2.2 6.3V TA A
FSC
1.5M_DEV
AU_BPF
1.7M_DEV
A_FADE
VC_SI
MC2
MC1
XVC_SCK
VC_SO
MC3
XCS_AU
PB/XREC
SP/XLP
TO VC-177 BOARD(5/14)
(SEE PAGE 4-31)
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-24, 25, 30, 31, 36, 45)
TO VC-177 BOARD(1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 12/14)
(SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 57)
TO VC-177 BOARD(9/14)
(SEE PAGE 4-45)
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
29
38
18
4
47
57
R1418 220k ±0.5%
R1410 100k
C1421 0.1 F
R1431 220k
R1430 390k ±0.5%
(A-11) (A-11)
Q1403, 1405 CHARACTERISTIC SWITCH for PB/REC
(A-11)
Q1404 SP/LP SWITCH
C1425 2.2 6.3V TA A
C1424 0.01 25V B 1608
C1423 0.47 16V B 2012
C1422 2.2 6.3V TA A
C1473 0.1 B
Q1405 UN9213-(TXE)
R1466 22k
Q1404 UN9213-(TXE)
2.8
R0.6/P0.3
R0.7/P0.3
R1/P0

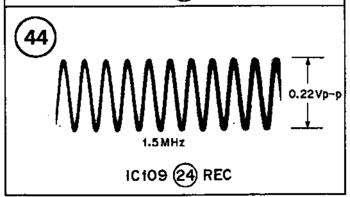
• SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	⇨

17

VC-177 BOARD (AU BLOCK)





/14)
4-31)

/14)
4-38)

4, 5/14, 6/14, 9/14)

30, 31, 36, 45)

/14, 2/14, 3/14, 4/14,
4, 6/14, 9/14, 12/14)

4-19, 24, 25,
31, 36, 46, 57)

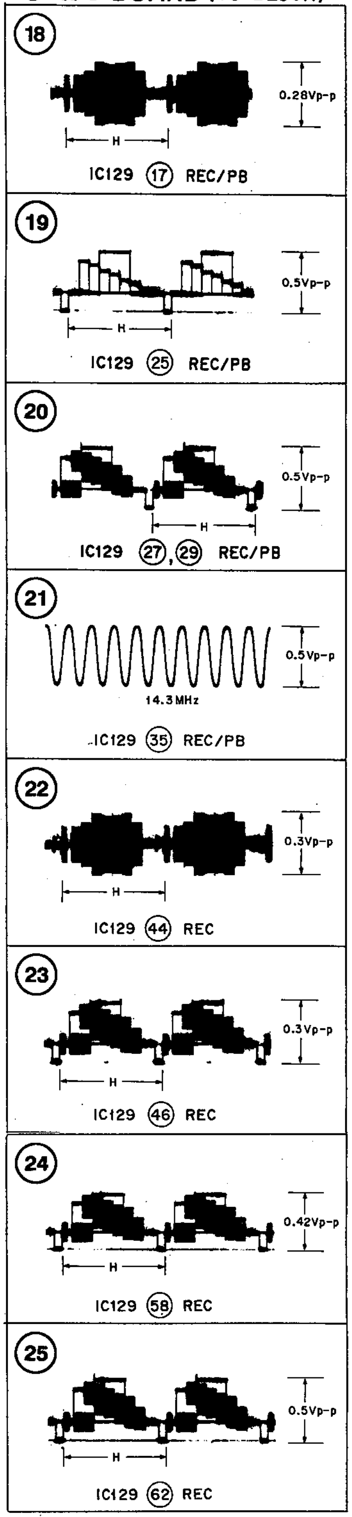
/14)
4-45)

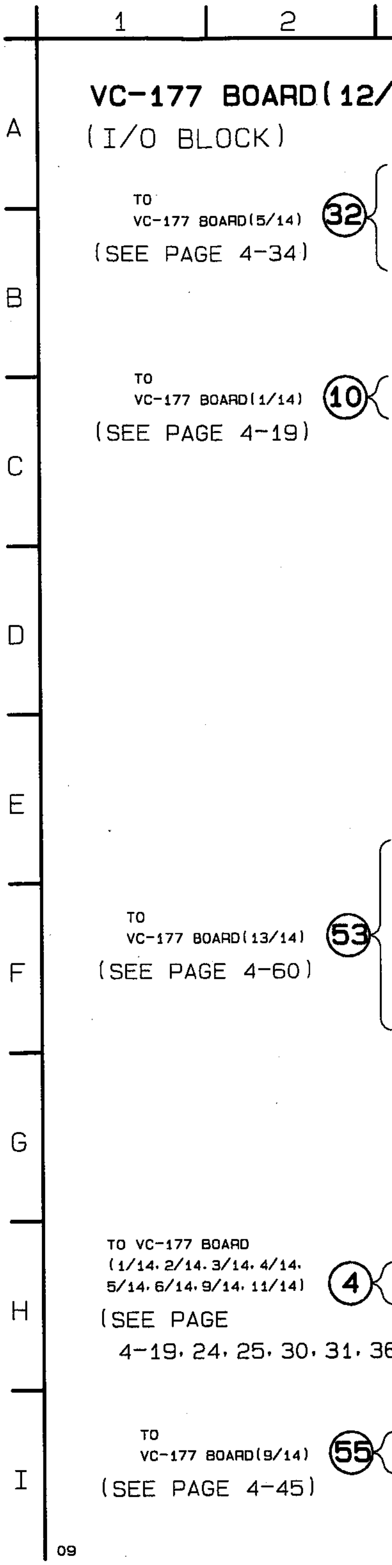
/14)
4-38)

VC-177 (VIDEO IN/OUT (1)) SCH

— Ref No. VC-177 BOARD: 10,000 series —

VC-177 BOARD (IO BLOCK)

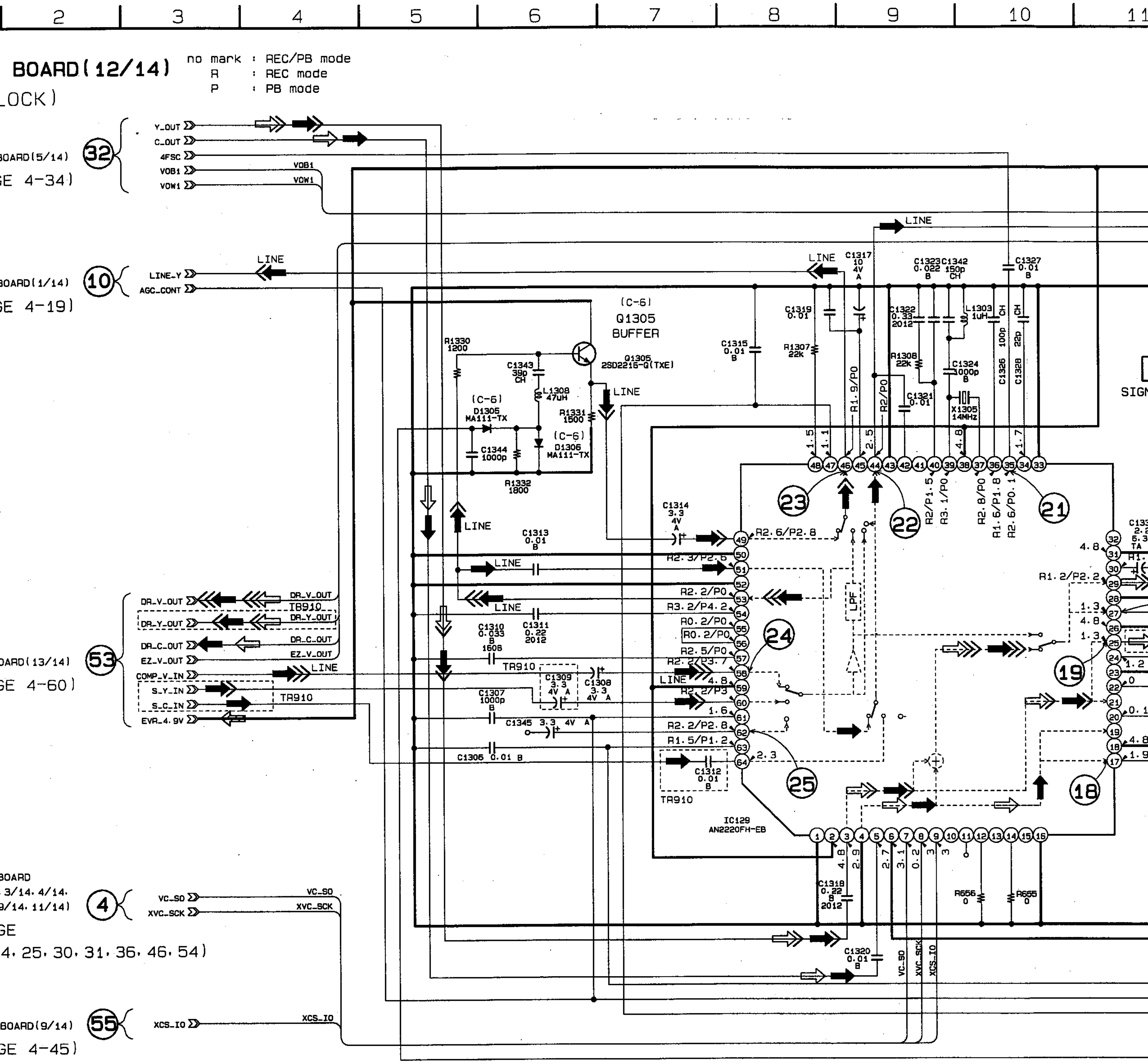



1
2
A
B
C
D
E
F
G
H
I
VC-177 BOARD(12/
(I/O BLOCK)
TO
VC-177 BOARD(5/14)
(SEE PAGE 4-34)
32
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)
10
TO
VC-177 BOARD(13/14)
(SEE PAGE 4-60)
53
TO VC-177 BOARD
(1/14, 2/14, 3/14, 4/14,
5/14, 6/14, 9/14, 11/14)
(SEE PAGE
4-19, 24, 25, 30, 31, 36
4
TO
VC-177 BOARD(9/14)
(SEE PAGE 4-45)
55
09

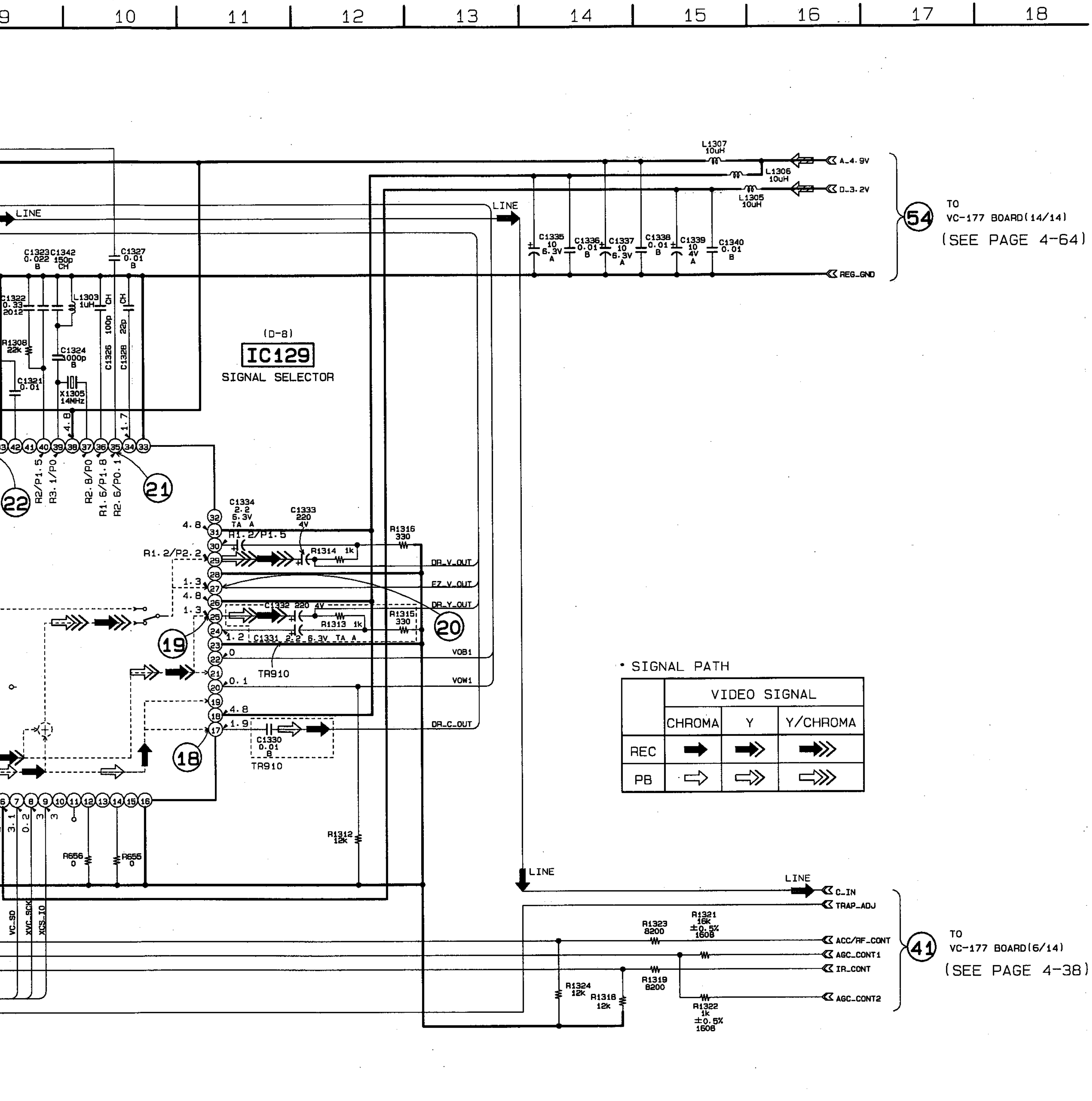
IN/OUT (1)) SCHEMATIC DIAGRAM

ARD: 10,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.



2
3
4
5
6
7
8
9
10
11
BOARD(12/14)
LOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
BOARD(5/14)
GE 4-34)
32
Y_OUT
C_OUT
4FSC
VOB1
VOW1
BOARD(1/14)
GE 4-19)
10
LINE_Y
AGC_CONT
LINE
BOARD(13/14)
GE 4-60)
53
DR_V_OUT
DR_Y_OUT
DR_C_OUT
EZ_V_OUT
COMP_V_IN
S_Y_IN
S_C_IN
EVR_4.9V
TR910
BOARD
3/14, 4/14,
9/14, 11/14)
GE
4, 25, 30, 31, 36, 46, 54)
4
VC_SO
XVC_SCK
BOARD(9/14)
GE 4-45)
55
XCS_IO
(C-6)
Q1305
BUFFER
Q1305
2SD2216-Q(TXE)
R1330
1200
C1343
39p
CH
L1308
47uH
R1331
1500
(C-6)
D1305
MA111-TX
(C-6)
D1306
MA111-TX
C1344
1000p
R1332
1800
C1313
0.01
B
C1310
0.033
B
1608
C1311
0.22
2012
C1309
3.3
4V A
C1308
3.3
4V A
C1307
1000p
B
C1345 3.3 4V A
C1306 0.01 B
C1314
3.3
4V
A
C1312
0.01
B
C1315
0.01
B
C1319
0.01
R1307
22K
C1317
10
4V
A
C1322
0.33
2012
R1308
22k
C1323
0.022
B
C1342
150p
CH
L1303
1uH
C1324
1000p
B
C1321
0.01
X1305
14MHz
C1326 100p CH
C1328 22p CH
C1327
0.01
B
C1318
0.22
B
2012
C1320
0.01
B
R656
0
R655
0
IC129
AN2220FH-EB
LPF
SIGN
R1.9/P0
R2/P0
R2/P1.5
R3.1/P0
R2.8/P0
R1.6/P1.8
R2.6/P0.1
R2.6/P2.8
R2.3/P2.5
R2.2/P0
R3.2/P4.2
R0.2/P0
R0.2/P0
R2.5/P0
R2.2/P3.7
4.8
R2.2/P3
1.6
R2.2/P2.8
R1.5/P1.2
2.3
R1.2/P2.2
1.5
1.1
2.5
4.8
1.7
4.8
2.9
2.7
3.1
0.2
3
3
1.3
4.8
1.3
1.2
0
0.1
4.8
1.9
C133
2.2
5.3
TA
R1.
23
22
21
24
19
25
18
VC_SO
XVC_SCK
XCS_IO


9
10
11
12
13
14
15
16
17
18
L1307
10uH
L1306
10uH
L1305
10uH
A_4.9V
D_3.2V
REG_GND
54
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-64)
LINE
LINE
C1335
10
6.3V
A
C1336
0.01
B
C1337
10
6.3V
A
C1338
0.01
B
C1339
10
4V
A
C1340
0.01
B
C1323
0.022
B
C1342
150p
CH
C1327
0.01
B
C1322
0.33
2012
L1303
1uH
C1326
100p
CH
C1328
22p
CH
R1308
22k
C1324
1000p
B
C1321
0.01
X1305
14MHz
4.8
1.7
(D-8)
IC129
SIGNAL SELECTOR
R2/P1.5
R3.1/P0
R2.8/P0
R1.6/P1.8
R2.6/P0.1
22
21
C1334
2.2
6.3V
TA A
C1333
220
4V
R1316
330
R1.2/P1.5
R1314 1k
R1.2/P2.2
4.8
1.3
4.8
1.3
C1332 220 4V
R1313 1k
R1315
330
1.2
C1331 2.2 6.3V TA A
0
0
0.1
4.8
1.9
TR910
C1330
0.01
B
TR910
DR_V_OUT
EZ_V_OUT
DR_Y_OUT
VOB1
VOW1
DR_C_OUT
19
20
18
3.1
0.2
3
3
R656
0
R655
0
R1312
12k
LINE
LINE
C_IN
TRAP_ADJ
ACC/RF_CONT
AGC_CONT1
IR_CONT
AGC_CONT2
R1323
8200
R1321
16K
±0.5%
1608
R1319
8200
R1324
12k
R1318
12k
R1322
1k
±0.5%
1608
VC_SO
XVC_SCK
XCS_IO
41
TO
VC-177 BOARD(6/14)
(SEE PAGE 4-38)

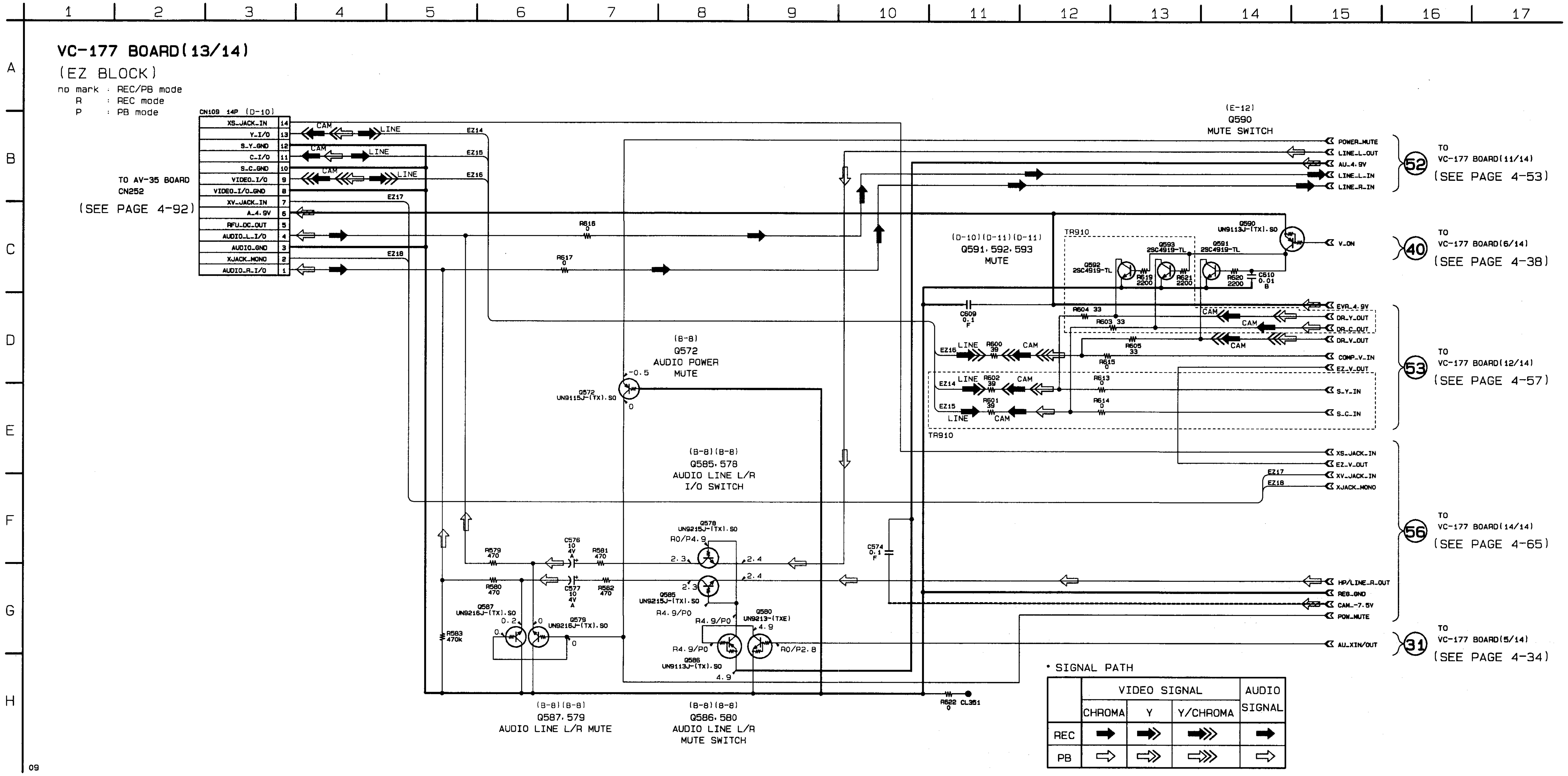
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»»
PB	⇨	⇨»	⇨»»

VC-177 (VIDEO IN/OUT (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

• Refer to page 4 – 13 for Printed Wiring Board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H
VC-177 BOARD(13/14)
(EZ BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
CN109 14P (D-10)
XS_JACK_IN 14
Y_I/O 13
S_Y_GND 12
C_I/O 11
S_C_GND 10
VIDEO_I/O 9
VIDEO_I/O_GND 8
XV_JACK_IN 7
A_4.9V 6
RFU_DC_OUT 5
AUDIO_L_I/O 4
AUDIO_GND 3
XJACK_MONO 2
AUDIO_R_I/O 1
TO AV-35 BOARD
CN252
(SEE PAGE 4-92)
CAM
LINE
EZ14
EZ15
EZ16
EZ17
EZ18
R616
0
R617
0
(B-8)
Q572
AUDIO POWER
MUTE
Q572
UN9115J-(TX).SO
-0.5
0
(B-8)(B-8)
Q585, 578
AUDIO LINE L/R
I/O SWITCH
R579
470
R580
470
C576
10
4V
A
C577
10
4V
A
R581
470
R582
470
R583
470k
Q587
UN9216J-(TX).SO
0.2
0
Q579
UN9216J-(TX).SO
Q578
UN9215J-(TX).SO
R0/P4.9
2.3
2.4
Q585
UN9215J-(TX).SO
R4.9/P0
Q580
UN9213-(TXE)
4.9
R0/P2.8
Q586
UN9113J-(TX).SO
(B-8)(B-8)
Q587, 579
AUDIO LINE L/R MUTE
(B-8)(B-8)
Q586, 580
AUDIO LINE L/R
MUTE SWITCH
C574
0.1
F
R622 CL351
0
(D-10)(D-11)(D-11)
Q591, 592, 593
MUTE
TR910
Q592
2SC4919-TL
Q593
2SC4919-TL
Q591
2SC4919-TL
R619
2200
R621
2200
R620
2200
C610
0.01
B
C609
0.1
F
R604 33
R603 33
R605
33
R615
0
R600
39
R602
39
R601
39
R613
0
R614
0
(E-12)
Q590
MUTE SWITCH
Q590
UN9113J-(TX).SO
POWER_MUTE
LINE_L_OUT
AU_4.9V
LINE_L_IN
LINE_R_IN
V_ON
EVR_4.9V
DR_Y_OUT
DR_C_OUT
DR_V_OUT
COMP_V_IN
EZ_V_OUT
S_Y_IN
S_C_IN
XS_JACK_IN
EZ_V_OUT
XV_JACK_IN
XJACK_MONO
HP/LINE_R_OUT
REG_GND
CAM_-7.5V
POW_MUTE
AU_XIN/OUT
52
TO
VC-177 BOARD(11/14)
(SEE PAGE 4-53)
40
TO
VC-177 BOARD(6/14)
(SEE PAGE 4-38)
53
TO
VC-177 BOARD(12/14)
(SEE PAGE 4-57)
56
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-65)
31
TO
VC-177 BOARD(5/14)
(SEE PAGE 4-34)
09

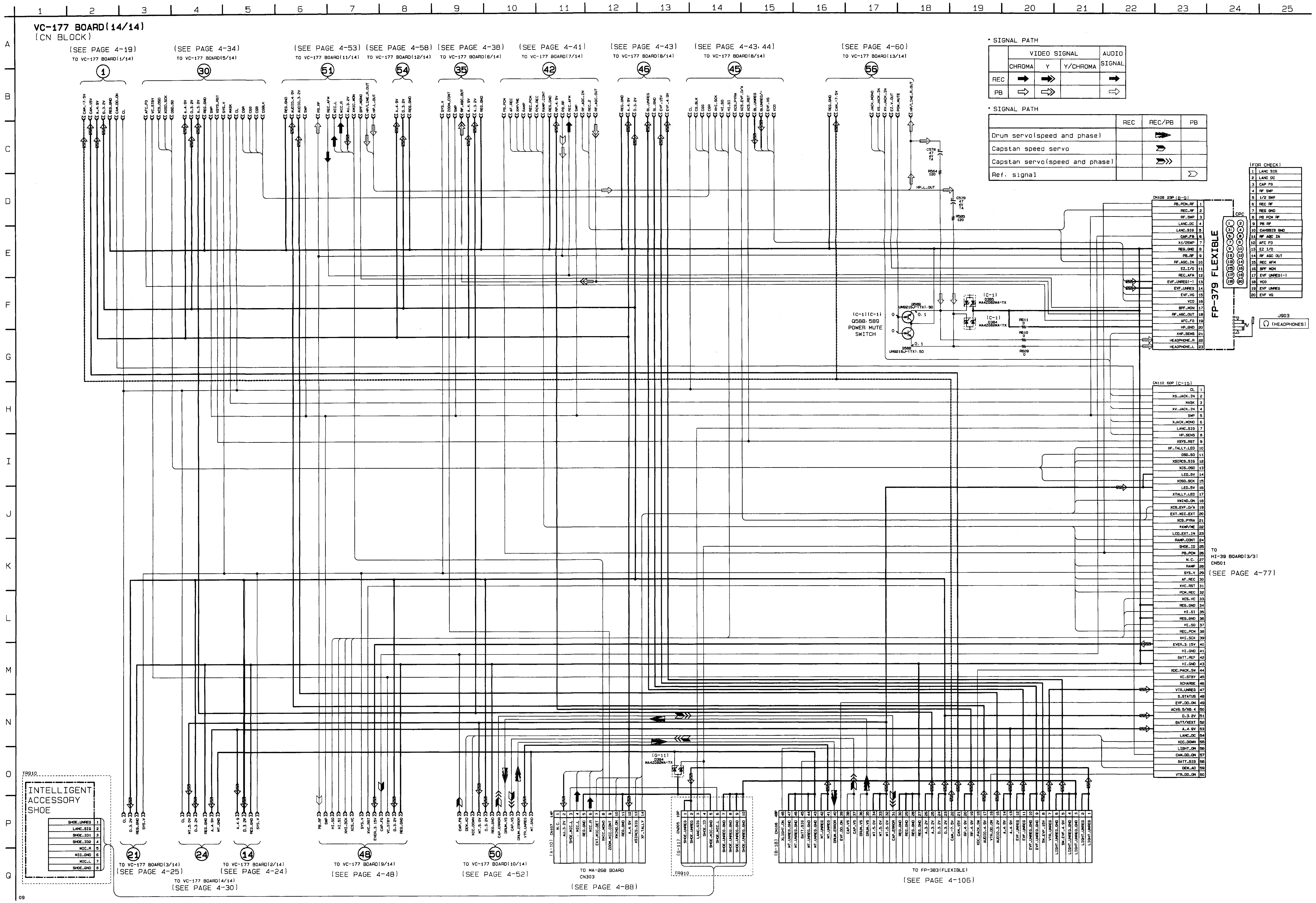
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

VC-177 (CONNECTOR), FP-379 (HEADPHONES) SCHEMATIC DIAGRAMS

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4 – 13 for Printed Wiring Board.


VC-177 BOARD(14/14)
(CN BLOCK)
(SEE PAGE 4-19) TO VC-177 BOARD(1/14) ①
(SEE PAGE 4-34) TO VC-177 BOARD(5/14) ㉚
(SEE PAGE 4-53) TO VC-177 BOARD(11/14) (51)
(SEE PAGE 4-58) TO VC-177 BOARD(12/14) (54)
(SEE PAGE 4-38) TO VC-177 BOARD(6/14) ㉟
(SEE PAGE 4-41) TO VC-177 BOARD(7/14) ㊷
(SEE PAGE 4-43) TO VC-177 BOARD(8/14) ㊻
(SEE PAGE 4-43, 44) TO VC-177 BOARD(8/14) ㊺
(SEE PAGE 4-60) TO VC-177 BOARD(13/14) (56)
Q588, 589 POWER MUTE SWITCH
CN108 23P (B-9)
FP-379 FLEXIBLE
CPC
(FOR CHECK)
J903
(HEADPHONES)
CN110 60P (C-15)
TO HI-39 BOARD(3/3) CN501 (SEE PAGE 4-77)
TR910
INTELLIGENT ACCESSORY SHOE
SHOE_UNREG 1
LANC_SIG 2
SHOE_ID1 3
SHOE_ID2 4
MIC_R 5
MIC_GND 6
MIC_L 7
SHOE_GND 8
㉑ TO VC-177 BOARD(3/14) (SEE PAGE 4-25)
㉔ TO VC-177 BOARD(4/14) (SEE PAGE 4-30)
⑭ TO VC-177 BOARD(2/14) (SEE PAGE 4-24)
㊽ TO VC-177 BOARD(9/14) (SEE PAGE 4-48)
㊿ TO VC-177 BOARD(10/14) (SEE PAGE 4-52)
(A-10) CN107 14P
TO MA-268 BOARD CN303 (SEE PAGE 4-88)
(G-11) CN205 10P
(G-11) D394 MA4Z082WA-TX
(B-10) CN106 49P
TO FP-383(FLEXIBLE) (SEE PAGE 4-105)

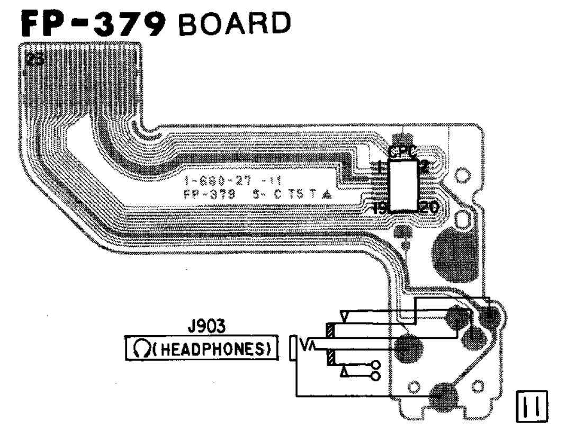
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»		➡
PB	⇨	⇨»		⇨

• SIGNAL PATH

	REC	REC/PB	PB
Drum servo(speed and phase)		➡	
Capstan speed servo		➡	
Capstan servo(speed and phase)		➡»	
Ref. signal			⇨

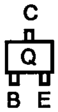
FP-379 (HEADPHONES) PRINTED WIRING BOARD


FP-379 BOARD
23
1-660-27-11
FP-379 5-CTST
CPC
1
2
19
20
J903
(HEADPHONES)
11

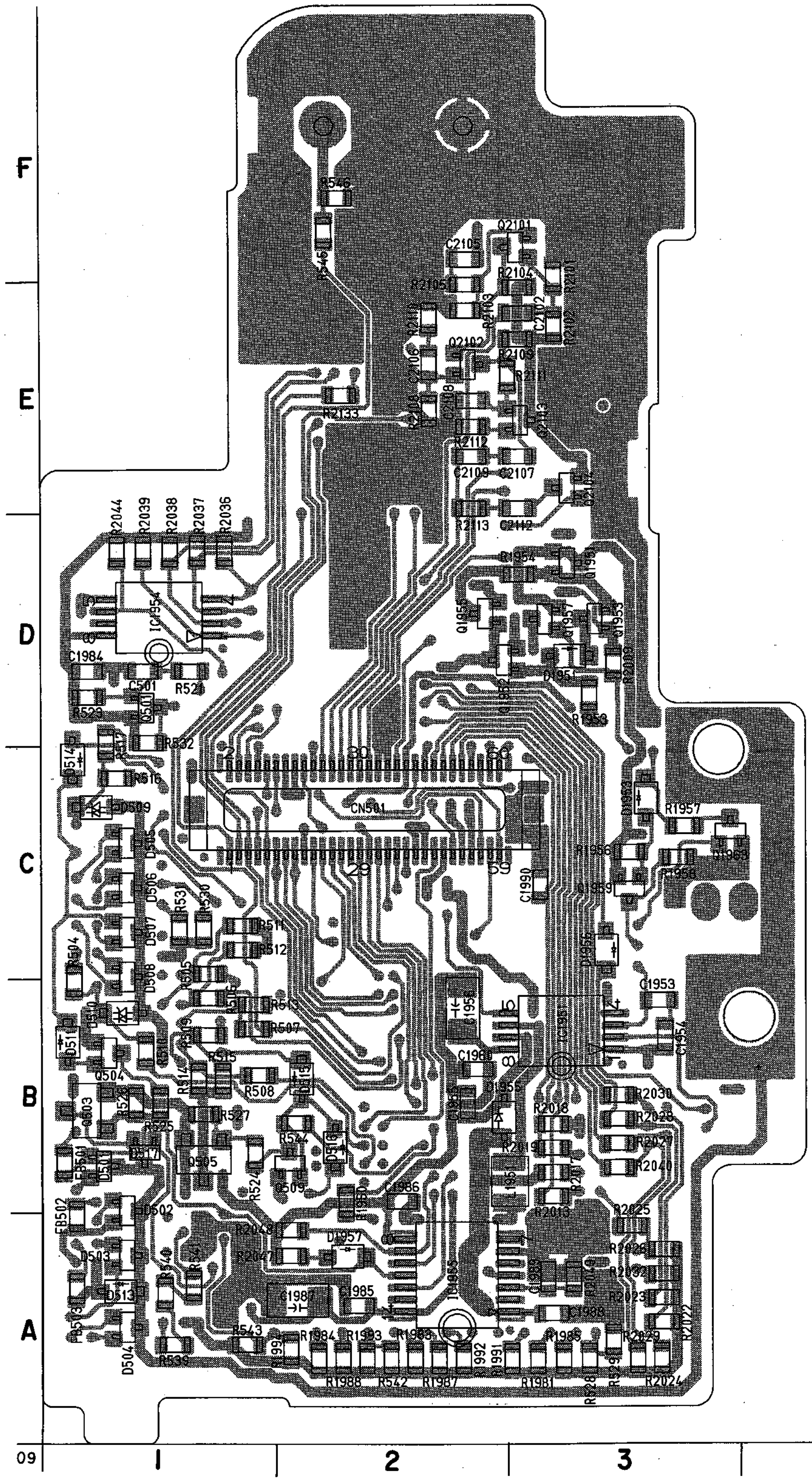
HI-39 (MODE CONTROL) PRINTED WIRING BOARD

— Ref No. HI-39 BOARD: 20,000 series —

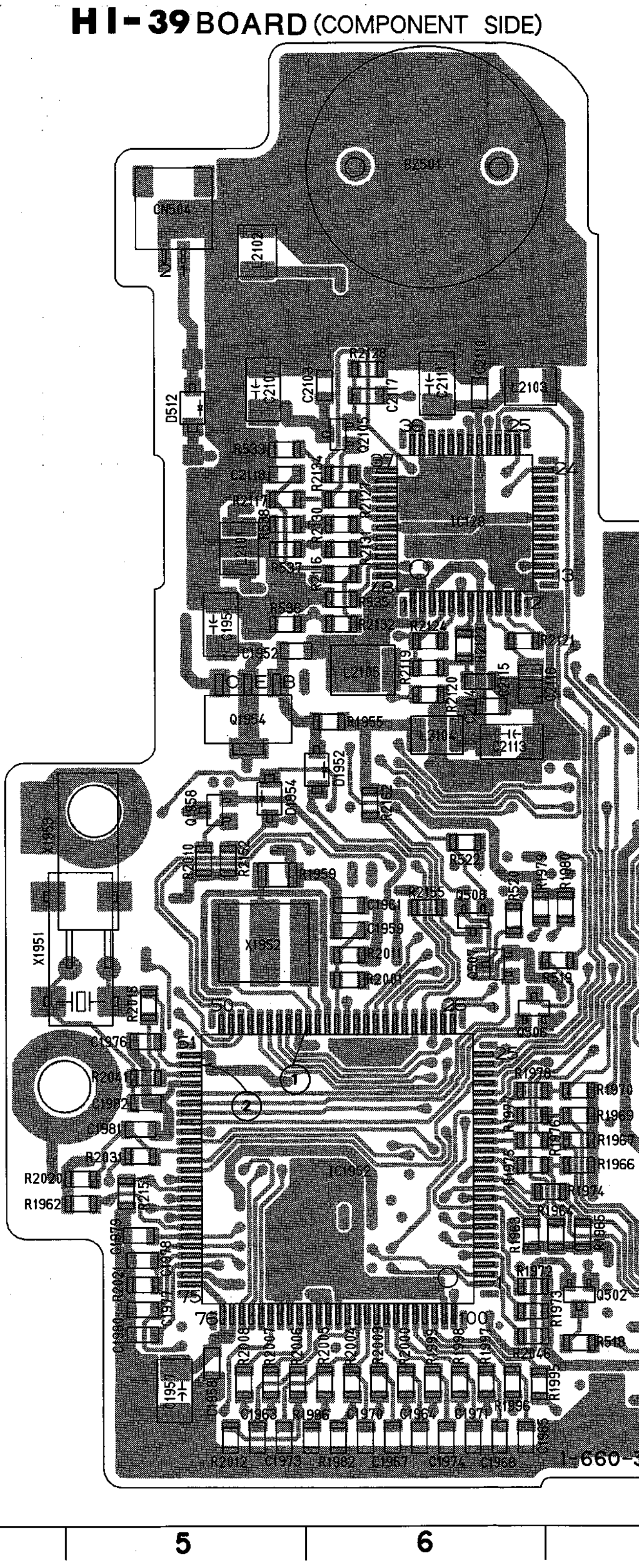
- For printed wiring boards.
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



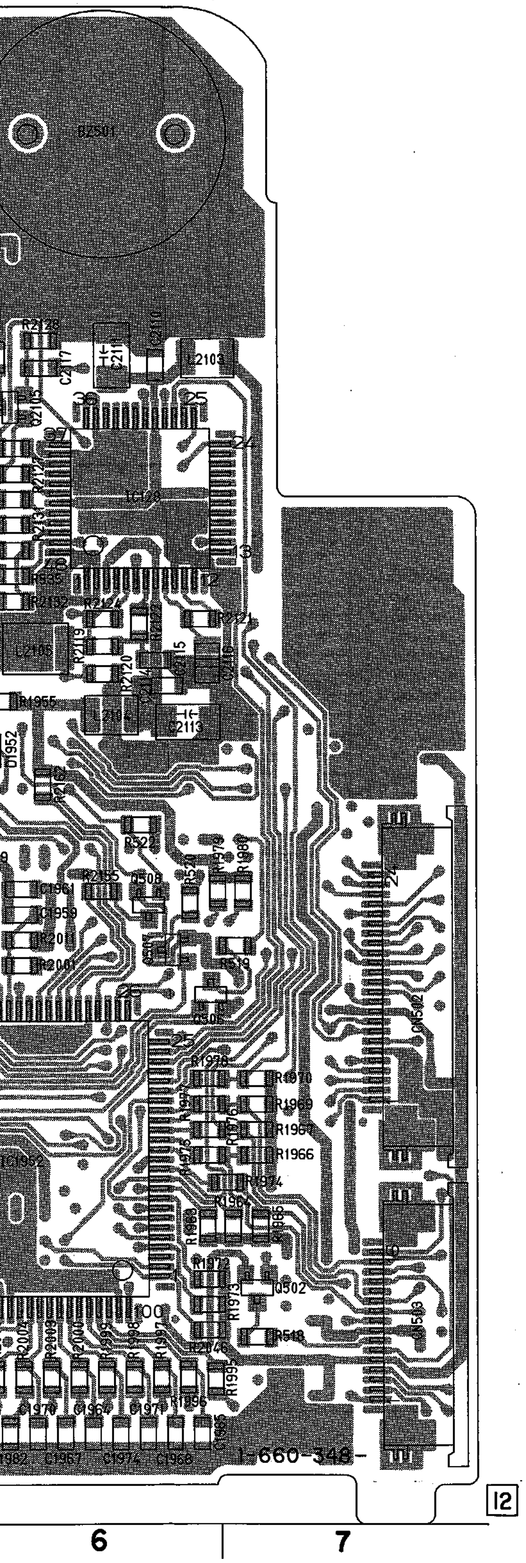
HI-39 BOARD (CONDUCTOR SIDE)


F
E
D
C
B
A
09
1
2
3
R546
Q2101
C2105
R2104
R2105
R2103
R2102
Q2102
R2109
R2111
R2133
R2112
C2109
C2107
R2113
C2112
R2044
R2039
R2038
R2037
R2036
IC1954
C1984
C501
R521
R529
R532
R516
D509
CN501
R1957
Q1953
R1956
R1958
C1990
C1953
C1954
IC1951
C1956
R511
R512
R513
R507
R515
R508
R527
R525
R524
Q504
Q505
Q509
D1957
C1987
R1985
R543
R1984
R1983
R539
D504
D513
R1988
R542
R1987
R1981
R2018
R2030
R2028
R2027
R2040
R2025
R2023
R2029
R2024
C1986
C1988
R2047
R2048
FB502
Q503
D503

HI-39 BOARD (COMPONENT SIDE)

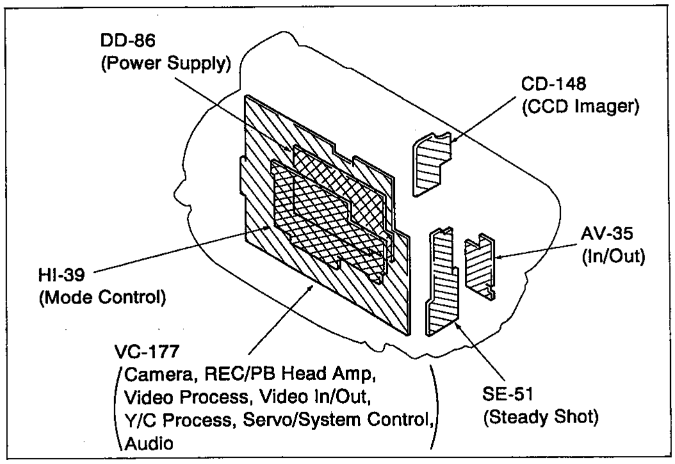

4
5
6
BZ501
CN504
D512
R2128
C2103
IC2101
L2106
Q1954
R1955
D1952
D1954
Q1958
X1953
X1951
X1952
R1959
C1961
C1959
R2155
R519
C1976
R2041
C1962
C1981
R2031
R2020
R1962
IC1952
C1971
R1970
R1969
R1967
R1966
R1972
Q502
R518
R2012
C1973
R1982
C1967
C1974
C1966
C1963
R1986
C1970
C1964
R1995
1-660-

COMPONENT SIDE)


BZ501
R2128
C2117
C2110
L2103
IC128
R535
R2152
R2124
R2121
L2105
R2119
R2120
C2115
R1955
C2113
D1952
R2162
R523
R2155
C1961
C1959
R2001
Q506
R519
Q502
R1970
R1969
R1967
R1966
R1974
IC1952
R518
1-660-348-
6
7
12

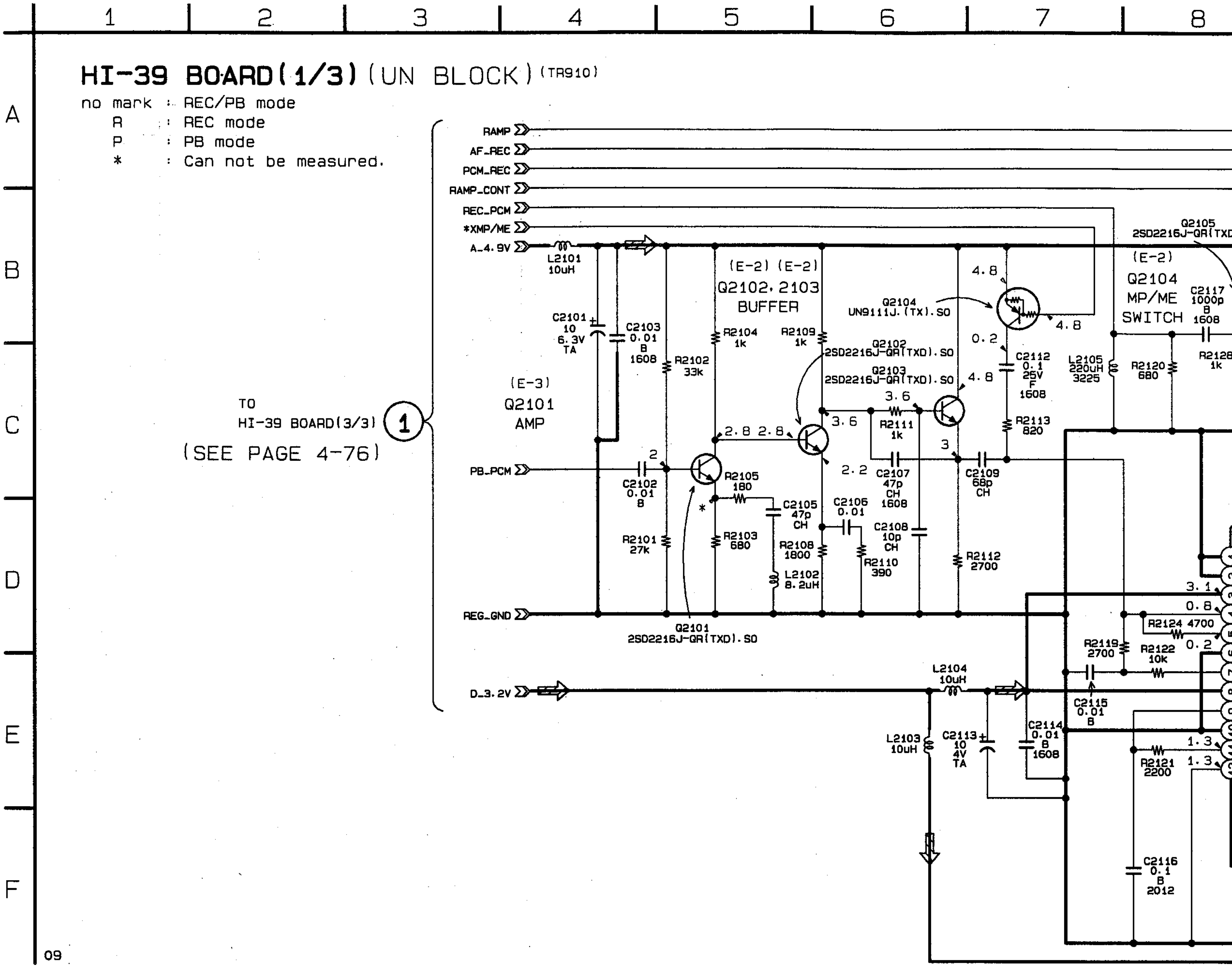
HI-39 BOARD

BZ501	E-6
C501	D-1
C1951	D-5
C1952	D-5
C1955	B-2
C1956	B-2
C1957	A-5
C1958	A-5
C1959	C-6
C1961	C-6
C1965	A-6
C1968	A-6
C1970	A-6
C1973	A-5
C1974	A-6
C1976	C-5
C1977	A-5
C1978	B-5
C1980	A-5
C1981	B-5
C1982	B-5
C1984	D-1
C1986	B-2
C1987	A-2
C1988	A-3
C1989	A-3
C1990	C-3
C2101	E-5
C2102	E-3
C2103	E-6
C2105	F-2
C2106	E-2
C2107	E-3
C2108	E-2
C2109	E-2
C2110	E-6
C2111	E-6
C2112	E-3
C2113	D-6
C2114	D-6
C2115	D-6
C2116	D-6
C2117	E-6
C2118	E-5
CN501	C-2
CN502	C-7
CN503	A-7
CN504	E-5
D501	B-1
D502	B-1
D503	A-1
D504	A-1
D511	B-1
D512	E-5
D514	C-1
D515	B-2
D516	B-2
D1951	D-3
D1952	D-6
D1953	C-3
D1954	D-5
D1955	B-2
D1956	C-3
D1957	A-2
FB501	B-1
FB502	A-1
FB503	A-1
IC128	E-6
IC1951	B-3
IC1952	B-6
IC1954	D-1
IC1955	A-2
L1951	B-2
L2101	E-5
L2102	E-5
L2103	E-6
L2104	D-6
L2105	D-6
Q501	D-1
Q502	A-7
Q503	B-1
Q504	B-1
Q505	B-1
Q506	C-6
Q509	B-2
Q1951	D-3
Q1952	D-2
Q1953	D-3
Q1954	D-5
Q1955	D-2
Q1959	C-3
Q1963	C-3
Q2101	F-3
Q2102	E-2
Q2103	E-3
Q2104	E-3
Q2105	E-6
R510	B-1
R511	C-1
R512	C-1
R513	B-1
R514	B-1
R515	B-1
R516	C-1
R518	A-7
R519	C-7
R521	D-1
R522	C-6
R523	D-1
R524	B-1
R525	B-1
R526	B-1
R528	A-3
R529	A-3
R530	C-1
R531	C-1
R533	E-5
R535	D-6
R536	D-5
R537	E-5
R538	E-5
R539	A-1
R540	A-1
R541	A-1
R542	A-2
R543	A-1
R545	F-2
R1953	D-3
R1954	D-3
R1955	D-6
R1956	C-3
R1957	C-3
R1958	C-3
R1959	C-5
R1960	B-2
R1962	B-5
R1963	B-6
R1964	B-7
R1965	B-7
R1966	B-7
R1967	B-7
R1969	B-7
R1970	B-7
R1972	A-6
R1973	A-6
R1974	B-6
R1975	B-6
R1976	B-6
R1977	B-6
R1978	B-6
R1979	C-6
R1980	C-7
R1981	A-3
R1982	A-6
R1983	A-2
R1984	A-2
R1985	A-3
R1986	A-5
R1987	A-2
R1988	A-2
R1991	A-2
R1992	A-2
R1993	A-2
R1994	A-2
R1995	A-6
R1996	A-6
R1997	A-6
R1998	A-6
R1999	A-6
R2000	A-6
R2001	C-6
R2003	A-6
R2004	A-6
R2005	A-6
R2006	A-5
R2007	A-5
R2008	A-5
R2011	C-6
R2012	A-5
R2013	B-3
R2015	C-5
R2017	B-3
R2018	B-3
R2019	B-3
R2020	B-5
R2021	B-5
R2022	A-3
R2023	A-3
R2024	A-3
R2025	A-3
R2026	A-3
R2027	B-3
R2028	B-3
R2029	A-3
R2030	B-3
R2031	B-5
R2032	A-3
R2036	D-1
R2037	D-1
R2038	D-1
R2039	D-1
R2040	B-3
R2041	B-5
R2044	D-1
R2046	A-6
R2047	A-2
R2048	A-2
R2049	A-3
R2101	F-3
R2102	E-3
R2103	E-2
R2104	E-3
R2105	E-2
R2108	E-2
R2109	E-3
R2110	E-2
R2111	E-3
R2112	E-2
R2113	E-2
R2116	D-6
R2117	E-5
R2119	D-6
R2120	D-6
R2121	D-6
R2122	D-6
R2124	D-6
R2127	E-6
R2128	E-6
R2130	E-6
R2131	E-6
R2132	D-6
R2133	E-2
R2134	E-6
R2151	B-5
R2152	C-5
R2155	C-6
R2162	D-6
X1951	C-5
X1952	C-5

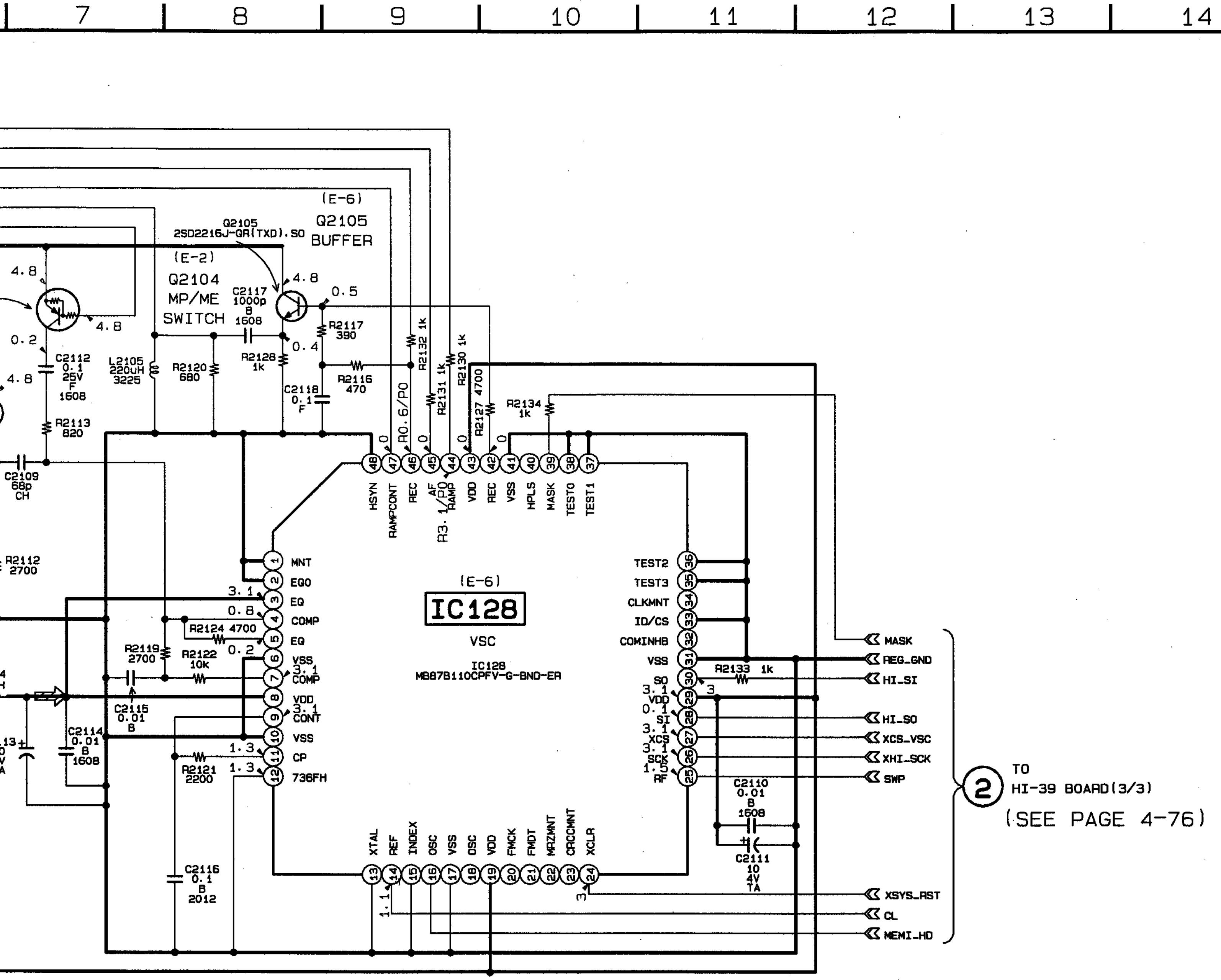

DD-86
(Power Supply)
CD-148
(CCD Imager)
AV-35
(In/Out)
HI-39
(Mode Control)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)
SE-51
(Steady Shot)

HI-39 (MODE CONTROL (1)) SCHEMATIC DIAGRAM (CCD-TR910 only)

— Ref No. HI-39 BOARD: 20,000 series —



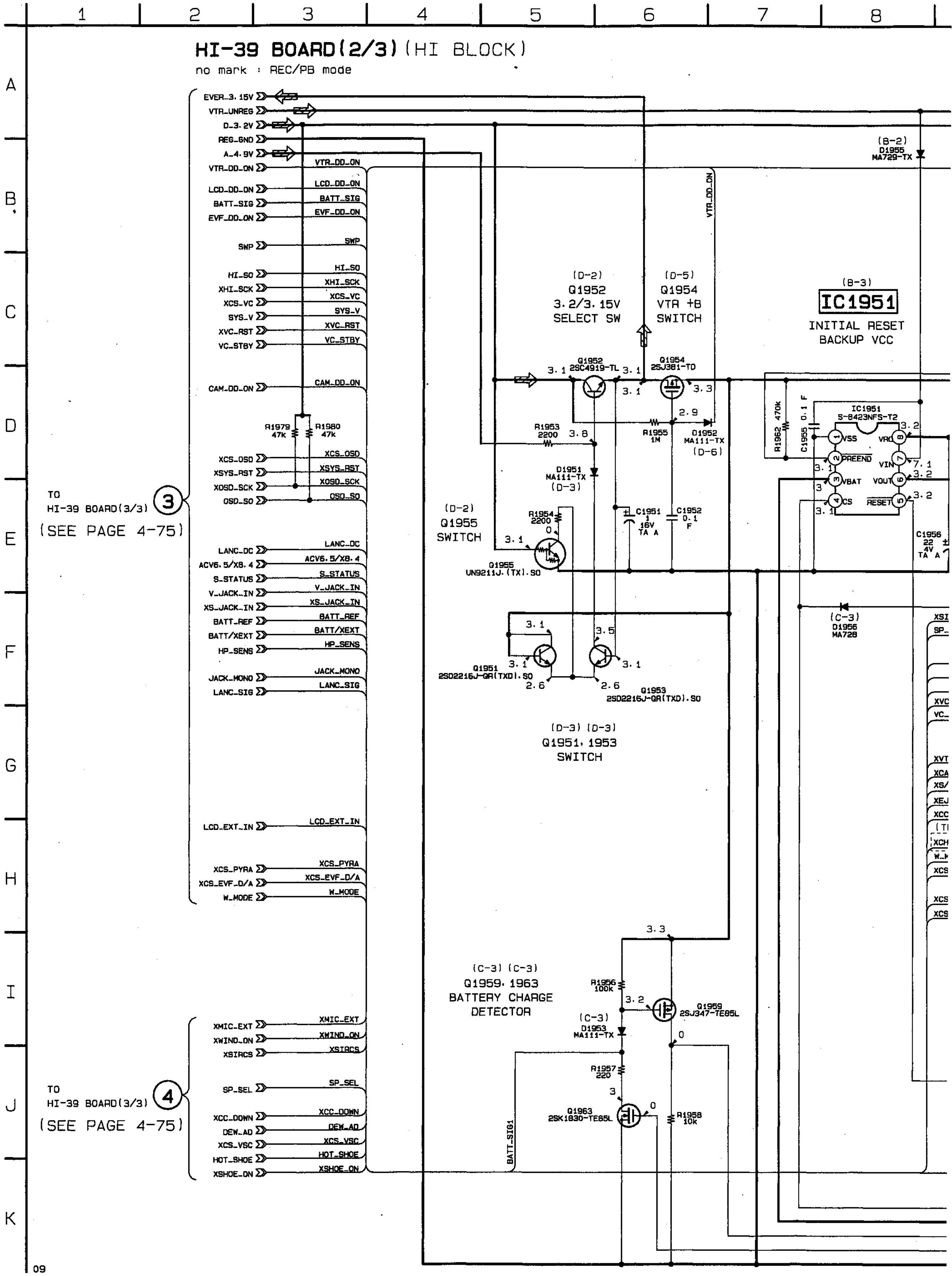
1
2
3
4
5
6
7
8
A
B
C
D
E
F
HI-39 BOARD(1/3) (UN BLOCK) (TR910)
no mark : REC/PB mode
R : REC mode
P : PB mode
* : Can not be measured.
TO
HI-39 BOARD(3/3)
1
(SEE PAGE 4-76)
RAMP
AF_REC
PCM_REC
RAMP_CONT
REC_PCM
*XMP/ME
A_4.9V
PB_PCM
REG_GND
D_3.2V
L2101 10uH
C2101 10 6.3V TA
C2103 0.01 B 1608
R2102 33k
(E-3) Q2101 AMP
C2102 0.01 B
R2101 27k
Q2101 2SD2216J-QR(TXD).SO
R2104 1k
R2105 180
R2103 680
C2105 47p CH
L2102 8.2uH
(E-2) (E-2) Q2102, 2103 BUFFER
R2109 1k
Q2102 2SD2216J-QR(TXD).SO
Q2103 2SD2216J-QR(TXD).SO
R2108 1800
C2106 0.01
R2110 390
R2111 1k
C2107 47p CH 1608
C2108 10p CH
Q2104 UN9111J.(TX).SO
C2112 0.1 25V F 1608
R2113 820
C2109 68p CH
R2112 2700
L2105 220uH 3225
Q2105 2SD2216J-QR(TXD
(E-2) Q2104 MP/ME SWITCH
C2117 1000p B 1608
R2120 680
R2128 1k
R2124 4700
R2119 2700
R2122 10k
C2115 0.01 B
C2114 0.01 B 1608
L2104 10uH
L2103 10uH
C2113 10 4V TA
R2121 2200
C2116 0.1 B 2012
2
2.8
2.8
3.6
3.6
2.2
3
4.8
4.8
0.2
4.8
3.1
0.8
0.2
1.3
1.3
*
09


7
8
9
10
11
12
13
14
(E-6)
Q2105
BUFFER
Q2105
2SD2216J-QR(TXD).SO
(E-2)
Q2104
MP/ME
SWITCH
C2117
1000p
B
1608
4.8
0.5
R2117
390
0.4
R2128
1k
R2120
680
L2105
220uH
3225
C2112
0.1
25V
F
1608
R2113
820
C2109
68p
CH
R2112
2700
C2118
0.1
F
R2116
470
R2132 1k
R2131 1k
R2130 1k
R2127 4700
R2134
1k
R0.6/P0
R3.1/P0
HSYN
RAMPCONT
REC
AF
RAMP
VDD
REC
VSS
HPLS
MASK
TEST0
TEST1
MNT
EQ0
EQ
COMP
EQ
VSS
COMP
VDD
CONT
VSS
CP
736FH
3.1
0.8
R2124 4700
0.2
R2119
2700
R2122
10k
C2115
0.01
B
C2114
0.01
B
1608
1.3
R2121
2200
C2116
0.1
B
2012
(E-6)
IC128
VSC
IC128
MB87B110CPFV-G-BND-ER
TEST2
TEST3
CLKMNT
ID/CS
COMINHB
VSS
SO
VDD
SI
XCS
SCK
RF
R2133 1k
C2110
0.01
B
1608
C2111
10
4V
TA
XTAL
REF
INDEX
OSC
VSS
OSC
VDD
FMCK
FMDT
MRZMNT
CRCCMNT
XCLR
MASK
REG_GND
HI_SI
HI_SO
XCS_VSC
XHI_SCK
SWP
XSYS_RST
CL
MEMI_HD
②
TO
HI-39 BOARD(3/3)
(SEE PAGE 4-76)

HI-39 (MODE CONTROL (2)) SCHEMATIC DIAGRAM

— Ref No. HI-39 BOARD: 20,000 series —

• Refer to p


1
2
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4
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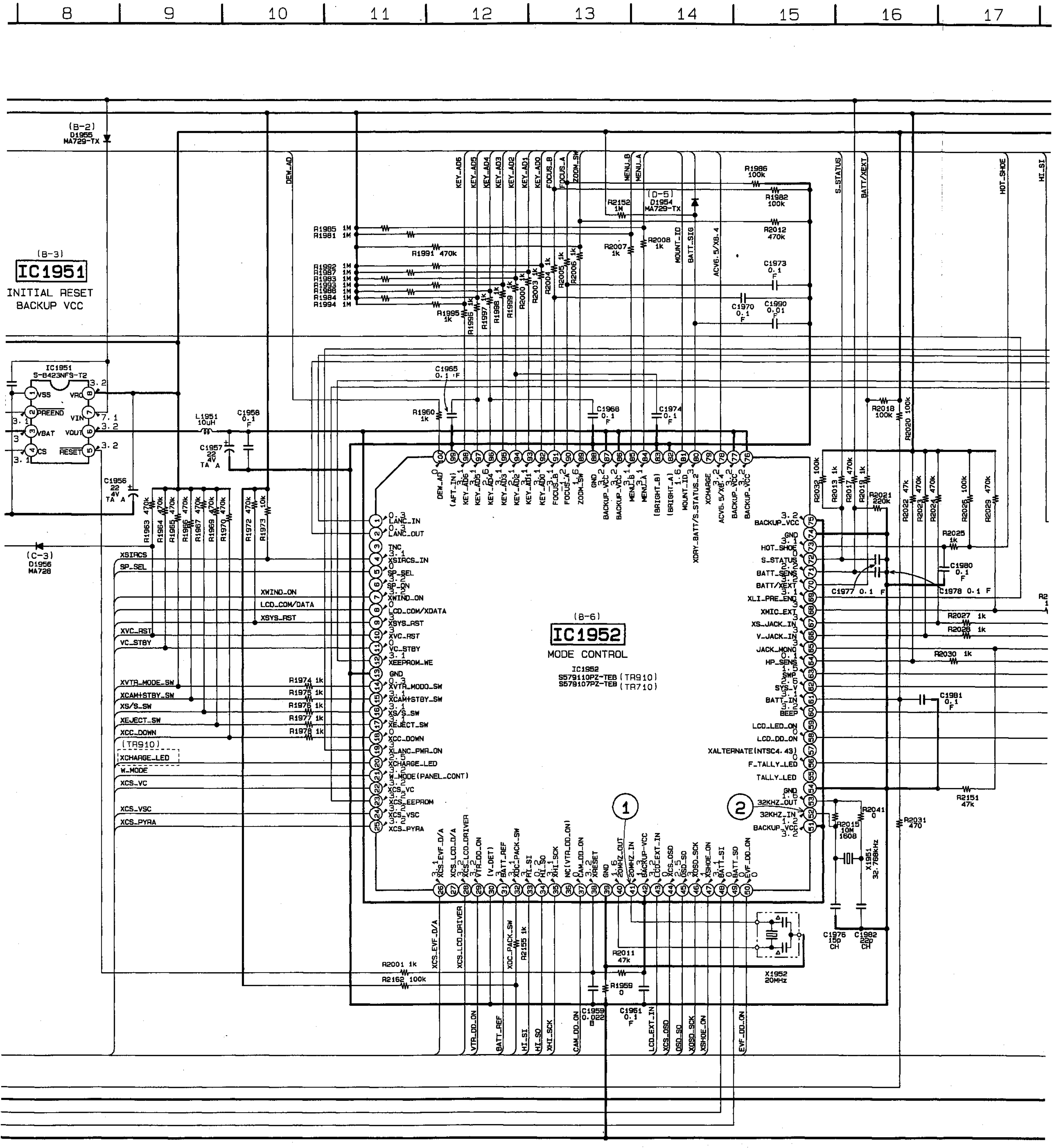
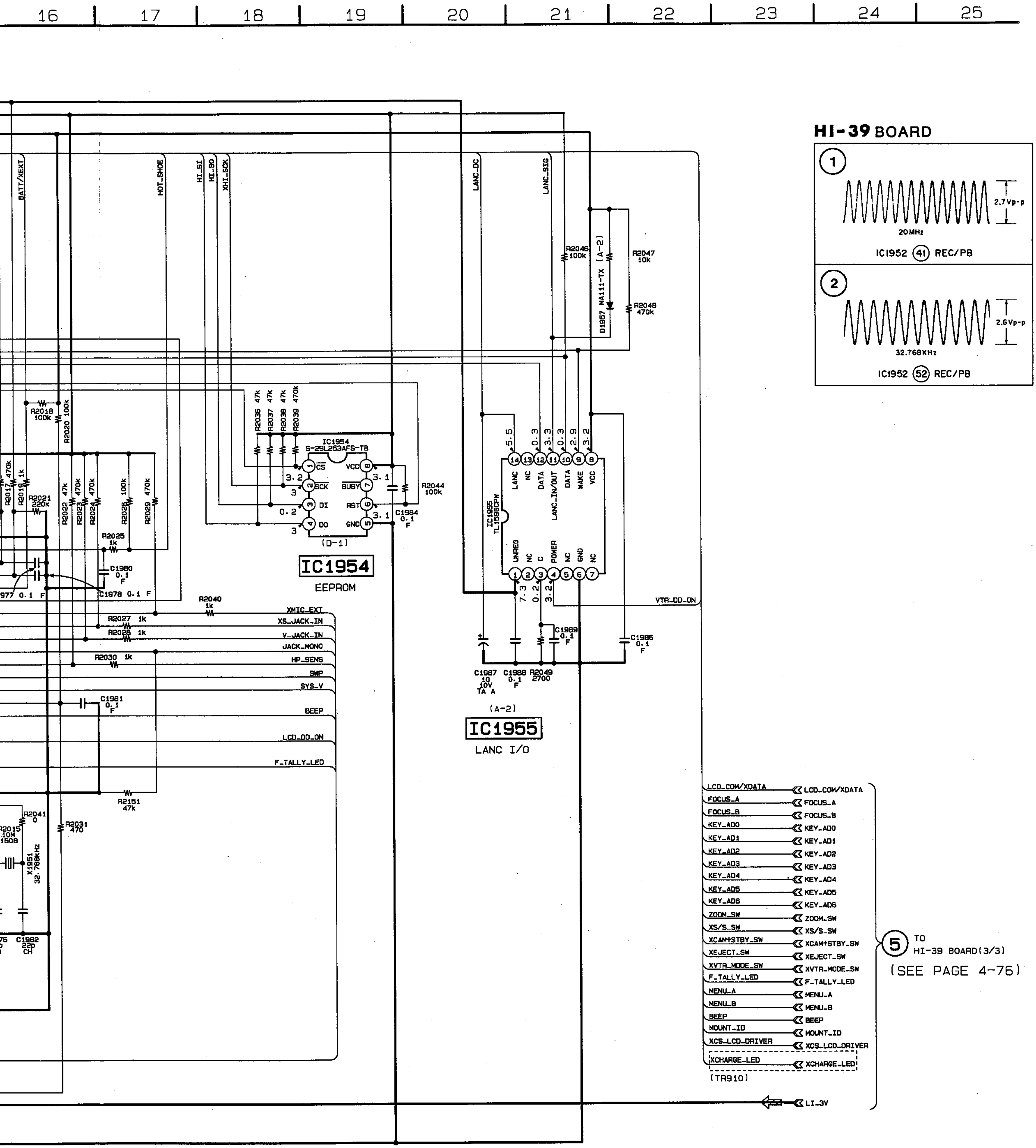
6
7
8
A
B
C
D
E
F
G
H
I
J
K
HI-39 BOARD(2/3) (HI BLOCK)
no mark : REC/PB mode
EVER_3.15V
VTR_UNREG
D_3.2V
REG_GND
A_4.9V
VTR_DD_ON
LCD_DD_ON
BATT_SIG
EVF_DD_ON
SWP
HI_SO
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
CAM_DD_ON
R1979 47k
R1980 47k
XCS_OSD
XSYS_RST
XOSD_SCK
OSD_SO
TO HI-39 BOARD(3/3)
③
(SEE PAGE 4-75)
LANC_DC
ACV6.5/X8.4
S_STATUS
V_JACK_IN
XS_JACK_IN
BATT_REF
BATT/XEXT
HP_SENS
JACK_MONO
LANC_SIG
LCD_EXT_IN
XCS_PYRA
XCS_EVF_D/A
W_MODE
XMIC_EXT
XWIND_ON
XSIRCS
SP_SEL
XCC_DOWN
DEW_AD
XCS_VSC
HOT_SHOE
XSHOE_ON
TO HI-39 BOARD(3/3)
④
(SEE PAGE 4-75)
VTR_DD_ON
(D-2) Q1952 3.2/3.15V SELECT SW
(D-5) Q1954 VTR +B SWITCH
Q1952 2SC4919-TL
Q1954 2SJ381-TD
3.1
3.1
3.1
3.3
2.9
R1953 2200
3.8
R1955 1M
D1952 MA111-TX (D-6)
D1951 MA111-TX (D-3)
(D-2) Q1955 SWITCH
R1954 2200
0
3.1
Q1955 UN9211J-(TX).SO
C1951 1 16V TA A
C1952 0.1 F
3.1
3.5
3.1
3.1
2.6
2.6
Q1951 2SD2216J-QR(TXD).SO
Q1953 2SD2216J-QR(TXD).SO
(D-3) (D-3) Q1951, 1953 SWITCH
(B-2) D1955 MA729-TX
(B-3) IC1951 INITIAL RESET BACKUP VCC
R1962 470K
C1955 0.1 F
IC1951 S-8423NFS-T2
1 VSS
2 PREEND
3 VBAT
4 CS
5 RESET
6 VOUT
7 VIN
8 VRO
3.2
7.1
3.2
3.2
3.1
3
3.1
C1956 22 4V TA A
(C-3) D1956 MA728
XSI
SP_
XVC
VC_
XVT
XCA
XS/
XEJ
XCC
(TI
XCH
W_M
XCS
XCS
XCS
3.3
(C-3) (C-3) Q1959, 1963 BATTERY CHARGE DETECTOR
R1956 100k
3.2
Q1959 2SJ347-TE85L
(C-3) D1953 MA111-TX
0
R1957 220
3
0
Q1963 2SK1830-TE85L
R1958 10k
BATT_SIG1
09

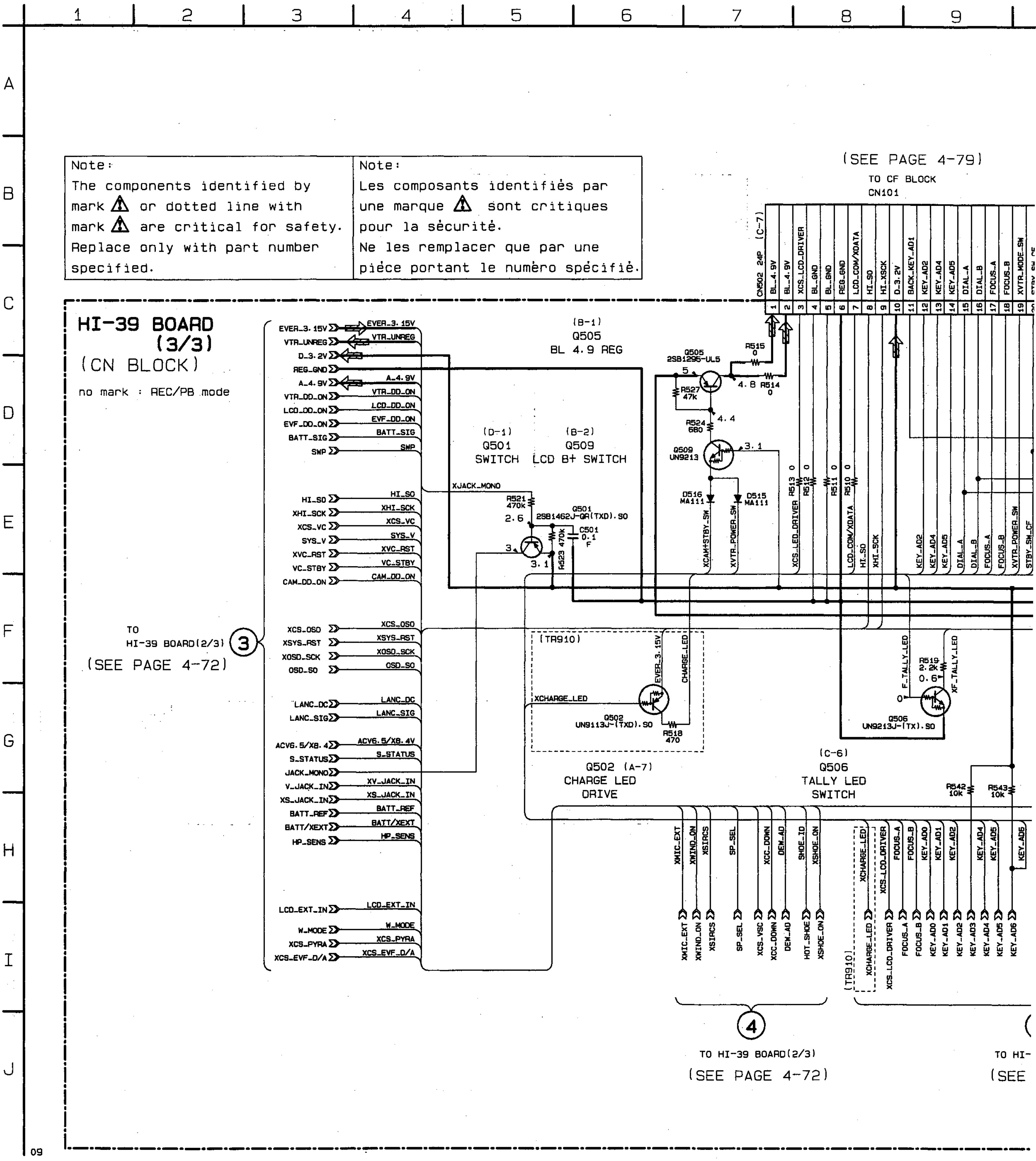
• Refer to page 4 – 67 for Printed Wiring Board.



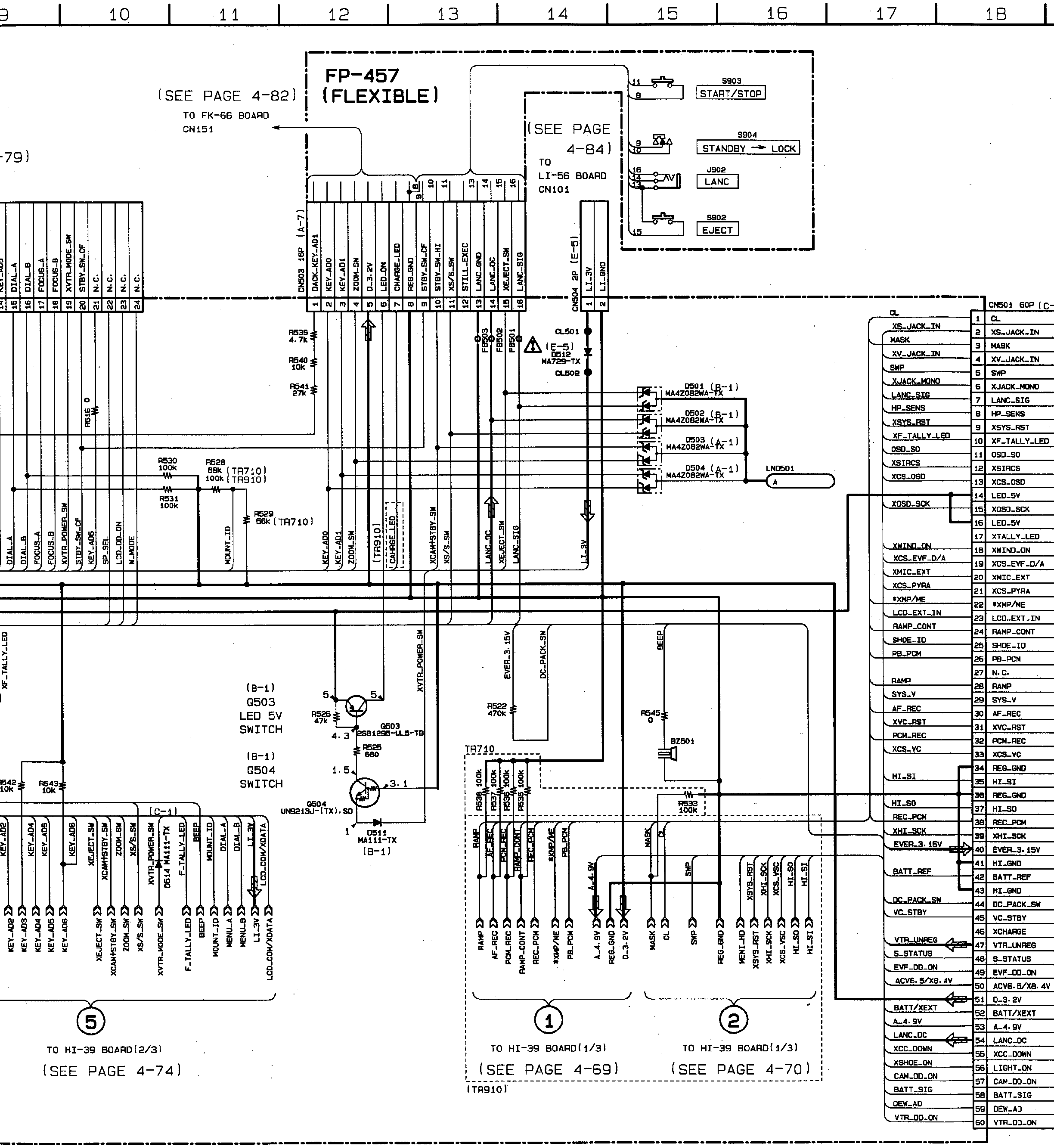
8
9
10
11
12
13
14
15
16
17
(B-3)
IC1951
INITIAL RESET
BACKUP VCC
IC1951
S-8423NFS-T2
VSS
PREEND
VBAT
CS
VRO
VIN
VOUT
RESET
(B-2)
D1955
MA729-TX
(C-3)
D1956
MA728
L1951
10uH
C1956
22
4V
TA A
C1957
22
4V
TA A
C1958
0.1
F
R1963 470k
R1964 470k
R1965 470k
R1966 470k
R1967 470k
R1969 470k
R1970 470k
R1972 470k
R1973 10k
XSIRCS
SP_SEL
XWIND_ON
LCD_COM/DATA
XSYS_RST
XVC_RST
VC_STBY
XVTR_MODE_SW
XCAM+STBY_SW
XS/S_SW
XEJECT_SW
XCC_DOWN
(TR910)
XCHARGE_LED
W_MODE
XCS_VC
XCS_VSC
XCS_PYRA
R1974 1k
R1975 1k
R1976 1k
R1977 1k
R1978 1k
DEW_AD
KEY_AD6
KEY_AD5
KEY_AD4
KEY_AD3
KEY_AD2
KEY_AD1
KEY_AD0
FOCUS_B
FOCUS_A
ZOOM_SW
MENU_B
MENU_A
R1985 1M
R1981 1M
R1991 470k
R1992 1M
R1987 1M
R1983 1M
R1993 1M
R1988 1M
R1984 1M
R1994 1M
R1995 1k
R1996 1k
R1997 1k
R1998 1k
R1999 1k
R2000 1k
R2003 1k
R2004 1k
R2005 1k
R2006 1k
R2007 1k
R2008 1k
R2152 1M
(D-5)
D1954
MA729-TX
MOUNT_ID
BATT_SIG
ACV6.5/X8.4
R1986 100k
R1982 100k
R2012 470k
C1973 0.1 F
C1970 0.1 F
C1990 0.01 F
S_STATUS
BATT/XEXT
HOT_SHOE
HI_SI
C1965 0.1 F
R1960 1k
C1968 0.1 F
C1974 0.1 F
R2018 100k
R2020 100k
R2032 100k
R2013 1k
R2017 470k
R2019 1k
R2021 220k
R2022 47k
R2023 470k
R2024 470k
R2026 100k
R2029 470k
R2025 1k
C1980 0.1 F
C1977 0.1 F
C1978 0.1 F
R2027 1k
R2028 1k
R2030 1k
C1981 0.1 F
R2151 47k
R2041 0
R2031 470
R2015 10M 1608
X1951 32.768kHz
C1976 15p CH
C1982 22p CH
X1952 20MHz
R2011 47k
R1959 0
C1959 0.022 B
C1961 0.1 F
R2001 1k
R2162 100k
R2155 1k
(B-6)
IC1952
MODE CONTROL
IC1952
S579110PZ-TEB (TR910)
S579107PZ-TEB (TR710)
1 LANC_IN
2 LANC_OUT
3 INC
4 XSIRCS_IN
5 SP_SEL
6 SP_ON
7 XWIND_ON
8 LCD_COM/XDATA
9 XSYS_RST
10 XVC_RST
11 VC_STBY
12 XEEPROM_WE
13 GND
14 XVTR_MODO_SW
15 XCAM+STBY_SW
16 XS/S_SW
17 XEJECT_SW
18 XCC_DOWN
19 XLANC_PWR_ON
20 XCHARGE_LED
21 W_MODE(PANEL_CONT)
22 XCS_VC
23 XCS_EEPROM
24 XCS_VSC
25 XCS_PYRA
26 XCS_EVF_D/A
27 XCS_LCD_D/A
28 XCS_LCD_DRIVER
29 VTR_DD_ON
30 (V_DET)
31 BATT_REF
32 XDC_PACK_SW
33 HI_SI
34 HI_SO
35 XHI_SCK
36 NC(VTR_DD_ON)
37 CAM_DD_ON
38 XRESET
39 GND
40 20MHZ_OUT
41 20MHZ_IN
42 BACKUP_VCC
43 LCD_EXT_IN
44 XCS_OSD
45 OSD_SO
46 XOSD_SCK
47 XSHOE_ON
48 BATT_SI
49 BATT_SO
50 EVF_DD_ON
51 BACKUP_VCC
52 32KHZ_IN
53 32KHZ_OUT
54 GND
55 TALLY_LED
56 F_TALLY_LED
57 XALTERNATE(NTSC4.43)
58 LCD_DD_ON
59 LCD_LED_ON
60 BEEP
61 BATT_IN
62 SYS_V
63 SWP
64 HP_SENS
65 JACK_MONO
66 V_JACK_IN
67 XS_JACK_IN
68 XMIC_EXT
69 XLI_PRE_END
70 BATT/XEXT
71 BATT_SENS
72 S_STATUS
73 HOT_SHOE
74 GND
75 BACKUP_VCC
76 BACKUP_VCC
77 BACKUP_VCC
78 ACV6.5/X8.4
79 XCHARGE
80 XDRY_BATT/S_STATUS_2
81 MOUNT_ID
82 (BRIGHT_A)
83 (BRIGHT_B)
84 MENU_A
85 MENU_B
86 BACKUP_VCC
87 BACKUP_VCC
88 GND
89 ZOOM_SW
90 FOCUS_A
91 FOCUS_B
92 KEY_AD0
93 KEY_AD1
94 KEY_AD2
95 KEY_AD3
96 KEY_AD4
97 KEY_AD5
98 KEY_AD6
99 (AFT_IN)
100 DEW_AD
①
②
XCS_EVF_D/A
XCS_LCD_DRIVER
XDC_PACK_SW
VTR_DD_ON
BATT_REF
HI_SI
HI_SO
XHI_SCK
CAM_DD_ON
LCD_EXT_IN
XCS_OSD
OSD_SO
XOSD_SCK
XSHOE_ON
EVF_DD_ON


16
17
18
19
20
21
22
23
24
25
HI-39 BOARD
①
2.7Vp-p
20MHz
IC1952 (41) REC/PB
②
2.6Vp-p
32.768KHz
IC1952 (52) REC/PB
BATT/XEXT
HOT_SHOE
HI_SI
HI_SO
XHI_SCK
LANC_DC
LANC_SIG
R2046 100k
R2047 10k
R2048 470k
D1957 MA111-TX (A-2)
R2018 100k
R2020 100k
R2017 470k
R2019 1k
R2021 220k
R2022 47k
R2023 470k
R2024 470k
R2026 100k
R2029 470k
R2025 1k
C1980 0.1 F
C1977 0.1 F
C1978 0.1 F
R2035 47k
R2037 47k
R2038 47k
R2039 470k
IC1954 S-29L253AFS-TB
CS
SCK
DI
DO
VCC
BUSY
RST
GND
3.2
3
0.2
3
3.1
3.1
R2044 100k
C1984 0.1 F
(D-1)
IC1954
EEPROM
5.5
0.3
3.3
0.3
2.9
3.2
LANC
NC
DATA
LANC_IN/OUT
DATA
WAKE
VCC
IC1955 TL1596CPW
UNREG
NC
C
POWER
NC
GND
NC
7.3
0.2
3.2
VTR_DD_ON
C1989 0.1 F
C1986 0.1 F
C1987 10 10V TA A
C1988 0.1 F
R2049 2700
(A-2)
IC1955
LANC I/O
R2040 1k
XMIC_EXT
R2027 1k
XS_JACK_IN
R2028 1k
V_JACK_IN
JACK_MONO
R2030 1k
HP_SENS
SWP
SYS_V
C1981 0.1 F
BEEP
LCD_DD_ON
F_TALLY_LED
R2151 47k
R2041 0
R2015 10M 1608
R2031 470
X1951 32.768kHz
C1982 22p CH
LCD_COM/XDATA
FOCUS_A
FOCUS_B
KEY_AD0
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
ZOOM_SW
XS/S_SW
XCAM+STBY_SW
XEJECT_SW
XVTR_MODE_SW
F_TALLY_LED
MENU_A
MENU_B
BEEP
MOUNT_ID
XCS_LCD_DRIVER
XCHARGE_LED
(TR910)
LI_3V
⑤ TO HI-39 BOARD(3/3)
(SEE PAGE 4-76)

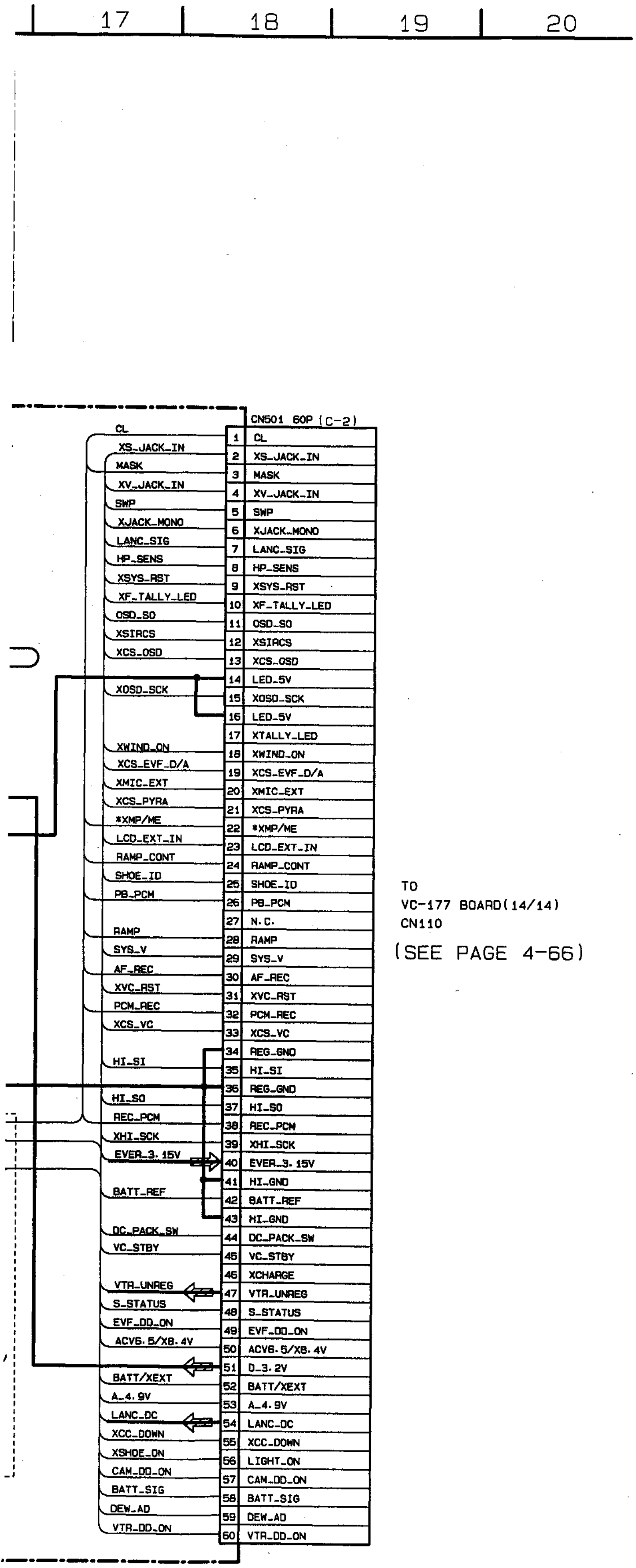
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiès par une marque ⚠ sont critiques pour la sècurité. Ne les remplacer que par une pièce portant le numèro spècifiè.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
HI-39 BOARD (3/3)
(CN BLOCK)
no mark : REC/PB mode
(SEE PAGE 4-79)
TO CF BLOCK
CN101
CN502 24P (C-7)
BL_4.9V
BL_4.9V
XCS_LCD_DRIVER
BL_GND
BL_GND
REG_GND
LCD_COM/XDATA
HI_SO
HI_XSCK
D_3.2V
BACK_KEY_AD1
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_MODE_SW
EVER_3.15V
VTR_UNREG
D_3.2V
REG_GND
A_4.9V
VTR_DD_ON
LCD_DD_ON
EVF_DD_ON
BATT_SIG
SWP
HI_SO
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
CAM_DD_ON
XCS_OSD
XSYS_RST
XOSD_SCK
OSD_SO
LANC_DC
LANC_SIG
ACV6.5/X8.4
S_STATUS
JACK_MONO
V_JACK_IN
XS_JACK_IN
BATT_REF
BATT/XEXT
HP_SENS
LCD_EXT_IN
W_MODE
XCS_PYRA
XCS_EVF_D/A
XV_JACK_IN
XS_JACK_IN
XJACK_MONO
TO
HI-39 BOARD(2/3)
③
(SEE PAGE 4-72)
(B-1)
Q505
BL 4.9 REG
Q505
2SB1295-UL5
R515
0
5
R527
47K
4.8
R514
0
R524
680
4.4
Q509
UN9213
3.1
D516
MA111
D515
MA111
(D-1)
Q501
SWITCH
(B-2)
Q509
LCD B+ SWITCH
R521
470k
2.6
Q501
2SB1462J-QR(TXD).SO
C501
0.1
F
3.1
R523 470k
3.1
R513 0
R512 0
R511 0
R510 0
XCAM+STBY_SW
XVTR_POWER_SW
XCS_LED_DRIVER
LCD_COM/XDATA
HI_SO
XHI_SCK
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_POWER_SW
STBY_SW_CF
(TR910)
EVER_3.15V
CHARGE_LED
XCHARGE_LED
Q502
UN9113J-(TXD).SO
R518
470
Q502 (A-7)
CHARGE LED
DRIVE
F_TALLY_LED
R519
2.2k
0.6
0
XF_TALLY_LED
Q506
UN9213J-(TX).SO
(C-6)
Q506
TALLY LED
SWITCH
R542
10k
R543
10k
XMIC_EXT
XWIND_ON
XSIRCS
SP_SEL
XCS_VSC
XCC_DOWN
DEW_AD
HOT_SHOE
SHOE_ID
XSHOE_ON
XCHARGE_LED
XCS_LCD_DRIVER
FOCUS_A
FOCUS_B
KEY_AD0
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
(TR910)
④
TO HI-39 BOARD(2/3)
(SEE PAGE 4-72)
TO HI-
(SEE
09

• Refer to page 4 – 67 for Printed Wiring Board.

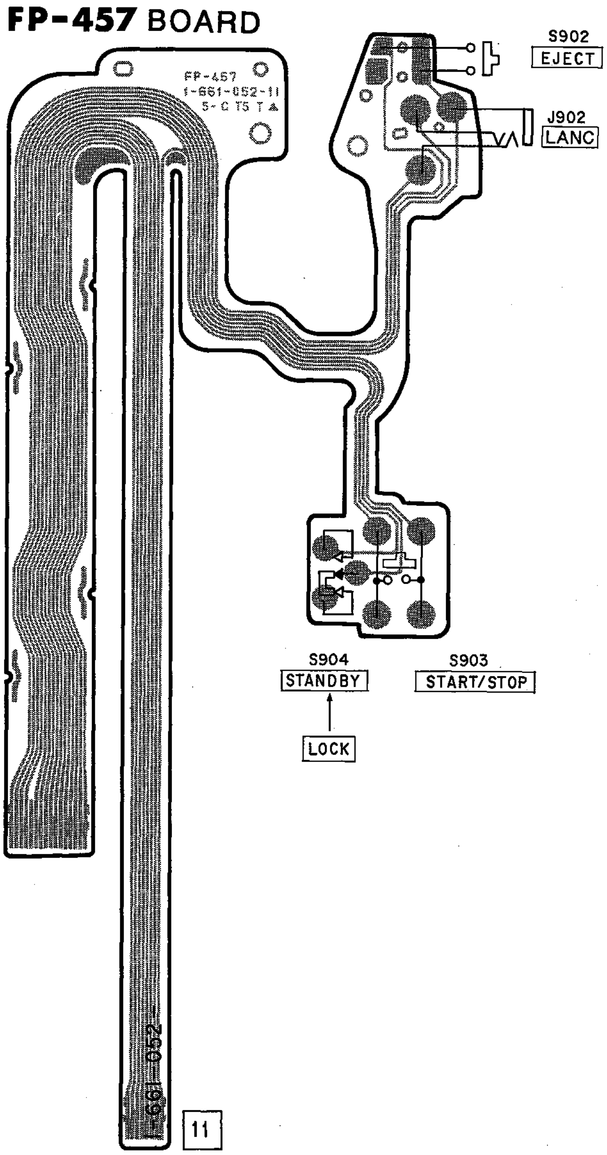


9
10
11
12
13
14
15
16
17
18
FP-457
(FLEXIBLE)
(SEE PAGE 4-82)
TO FK-66 BOARD
CN151
-79)
(SEE PAGE
4-84)
TO
LI-56 BOARD
CN101
S903
START/STOP
S904
STANDBY → LOCK
J902
LANC
S902
EJECT
CN503 16P (A-7)
BACK_KEY_AD1
KEY_AD0
KEY_AD1
ZOOM_SW
D_3.2V
LED_ON
CHARGE_LED
REG_GND
STBY_SW_CF
STBY_SW_HI
XS/S_SW
STILL_EXEC
LANC_GND
LANC_DC
XEJECT_SW
LANC_SIG
CN504 2P (E-5)
LI_3V
LI_GND
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_MODE_SW
STBY_SW_CF
N.C.
N.C.
N.C.
N.C.
R539 4.7k
R540 10k
R541 27k
R516 0
R530 100k
R528 68k (TR710) 100k (TR910)
R531 100k
R529 56k (TR710)
CL501
(E-5)
D512
MA729-TX
CL502
FB503
FB502
FB501
D501 (B-1) MA4Z082WA-TX
D502 (B-1) MA4Z082WA-TX
D503 (A-1) MA4Z082WA-TX
D504 (A-1) MA4Z082WA-TX
LND501
A
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_POWER_SW
STBY_SW_CF
KEY_AD6
SP_SEL
LCD_DD_ON
W_MODE
MOUNT_ID
KEY_AD0
KEY_AD1
ZOOM_SW
(TR910)
CAHRGE_LED
XCAM+STBY_SW
XS/S_SW
LANC_DC
XEJECT_SW
LANC_SIG
LI_3V
XF_TALLY_LED
(B-1)
Q503
LED 5V
SWITCH
(B-1)
Q504
SWITCH
R526 47k
Q503 2SB1295-UL5-TB
R525 680
Q504 UN9213J-(TX).SO
D511 MA111-TX (B-1)
XVTR_POWER_SW
EVER_3.15V
DC_PACK_SW
R522 470k
BEEP
R545 0
BZ501
TR710
R536 100k
R537 100k
R538 100k
R535 100k
R533 100k
R542 10k
R543 10k
KEY_AD2
KEY_AD4
KEY_AD5
KEY_AD6
XEJECT_SW
XCAM+STBY_SW
ZOOM_SW
XS/S_SW
XVTR_POWER_SW
D514 MA111-TX
F_TALLY_LED
BEEP
MOUNT_ID
DIAL_A
DIAL_B
LI_3V
LCD_COM/XDATA
(C-1)
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
XEJECT_SW
XCAM+STBY_SW
ZOOM_SW
XS/S_SW
XVTR_MODE_SW
F_TALLY_LED
BEEP
MOUNT_ID
MENU_A
MENU_B
LI_3V
LCD_COM/XDATA
5
TO HI-39 BOARD(2/3)
(SEE PAGE 4-74)
RAMP
AF_REC
PCM_REC
RAMP_CONT
REC_PCM
*XMP/ME
PB_PCM
A_4.9V
REG_GND
D_3.2V
MASK
CL
SWP
REG_GND
XEMI_HD
XSYS_RST
XHI_SCK
XCS_VSC
HI_SO
HI_SI
1
TO HI-39 BOARD(1/3)
(SEE PAGE 4-69)
2
TO HI-39 BOARD(1/3)
(SEE PAGE 4-70)
(TR910)
CN501 60P (C-
1 CL
2 XS_JACK_IN
3 MASK
4 XV_JACK_IN
5 SWP
6 XJACK_MONO
7 LANC_SIG
8 HP_SENS
9 XSYS_RST
10 XF_TALLY_LED
11 OSD_SO
12 XSIRCS
13 XCS_OSD
14 LED_5V
15 XOSD_SCK
16 LED_5V
17 XTALLY_LED
18 XWIND_ON
19 XCS_EVF_D/A
20 XMIC_EXT
21 XCS_PYRA
22 *XMP/ME
23 LCD_EXT_IN
24 RAMP_CONT
25 SHOE_ID
26 PB_PCM
27 N.C.
28 RAMP
29 SYS_V
30 AF_REC
31 XVC_RST
32 PCM_REC
33 XCS_VC
34 REG_GND
35 HI_SI
36 REG_GND
37 HI_SO
38 REC_PCM
39 XHI_SCK
40 EVER_3.15V
41 HI_GND
42 BATT_REF
43 HI_GND
44 DC_PACK_SW
45 VC_STBY
46 XCHARGE
47 VTR_UNREG
48 S_STATUS
49 EVF_DD_ON
50 ACV6.5/X8.4V
51 D_3.2V
52 BATT/XEXT
53 A_4.9V
54 LANC_DC
55 XCC_DOWN
56 LIGHT_ON
57 CAM_DD_ON
58 BATT_SIG
59 DEW_AD
60 VTR_DD_ON


17
18
19
20
CN501 60P (C-2)
1 CL
2 XS_JACK_IN
3 MASK
4 XV_JACK_IN
5 SWP
6 XJACK_MONO
7 LANC_SIG
8 HP_SENS
9 XSYS_RST
10 XF_TALLY_LED
11 OSD_SO
12 XSIRCS
13 XCS_OSD
14 LED_5V
15 XOSD_SCK
16 LED_5V
17 XTALLY_LED
18 XWIND_ON
19 XCS_EVF_D/A
20 XMIC_EXT
21 XCS_PYRA
22 *XMP/ME
23 LCD_EXT_IN
24 RAMP_CONT
25 SHOE_ID
26 PB_PCM
27 N.C.
28 RAMP
29 SYS_V
30 AF_REC
31 XVC_RST
32 PCM_REC
33 XCS_VC
34 REG_GND
35 HI_SI
36 REG_GND
37 HI_SO
38 REC_PCM
39 XHI_SCK
40 EVER_3.15V
41 HI_GND
42 BATT_REF
43 HI_GND
44 DC_PACK_SW
45 VC_STBY
46 XCHARGE
47 VTR_UNREG
48 S_STATUS
49 EVF_DD_ON
50 ACV6.5/X8.4V
51 D_3.2V
52 BATT/XEXT
53 A_4.9V
54 LANC_DC
55 XCC_DOWN
56 LIGHT_ON
57 CAM_DD_ON
58 BATT_SIG
59 DEW_AD
60 VTR_DD_ON
CL
XS_JACK_IN
MASK
XV_JACK_IN
SWP
XJACK_MONO
LANC_SIG
HP_SENS
XSYS_RST
XF_TALLY_LED
OSD_SO
XSIRCS
XCS_OSD
XOSD_SCK
XWIND_ON
XCS_EVF_D/A
XMIC_EXT
XCS_PYRA
*XMP/ME
LCD_EXT_IN
RAMP_CONT
SHOE_ID
PB_PCM
RAMP
SYS_V
AF_REC
XVC_RST
PCM_REC
XCS_VC
HI_SI
HI_SO
REC_PCM
XHI_SCK
EVER_3.15V
BATT_REF
DC_PACK_SW
VC_STBY
VTR_UNREG
S_STATUS
EVF_DD_ON
ACV6.5/X8.4V
BATT/XEXT
A_4.9V
LANC_DC
XCC_DOWN
XSHOE_ON
CAM_DD_ON
BATT_SIG
DEW_AD
VTR_DD_ON

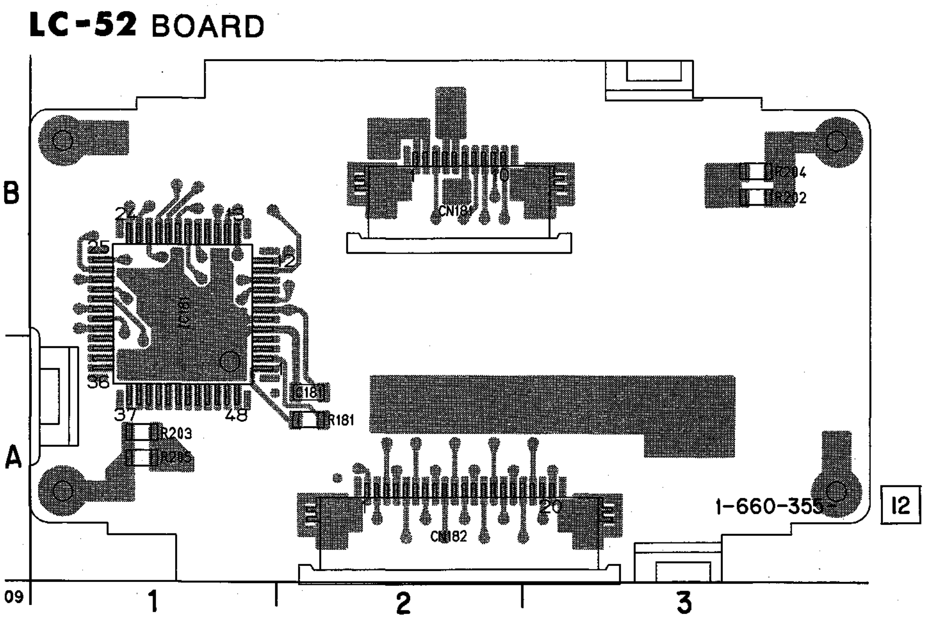
TO
VC-177 BOARD(14/14)
CN110
(SEE PAGE 4-66)

FP-457 (FRONT ZOOM) PRINTED WIRING BOARD


FP-457 BOARD
FP-457
1-661-052-11
5-CTST
S902
EJECT
J902
LANC
S904
STANDBY
LOCK
S903
START/STOP
1-661-052
11

LC-52 (LCD DRIVE) PRINTED WIRING BOARD

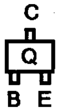
— Ref No. LC-52 BOARD: 7,000 series —


LC-52 BOARD
B
A
IC181
CN181
CN182
C181
R181
R202
R203
R204
R205
1
2
25
36
37
48
20
1-660-355
12
09
1
2
3

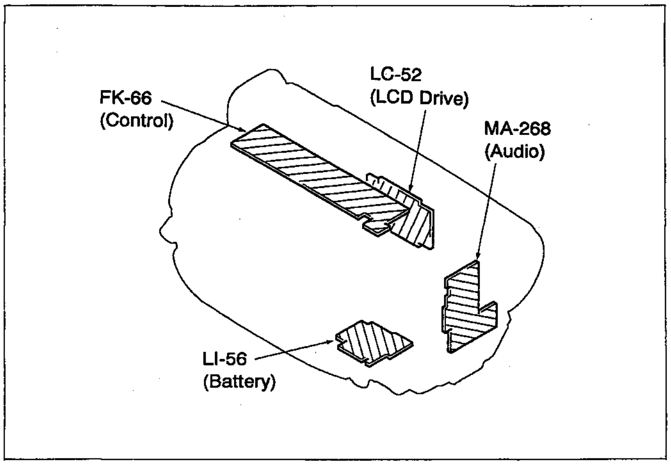
LC-52 BOARD

C181	A-2
CN181	B-2
CN182	A-2
IC181	B-1
R181	A-2
R202	B-3
R203	A-1

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

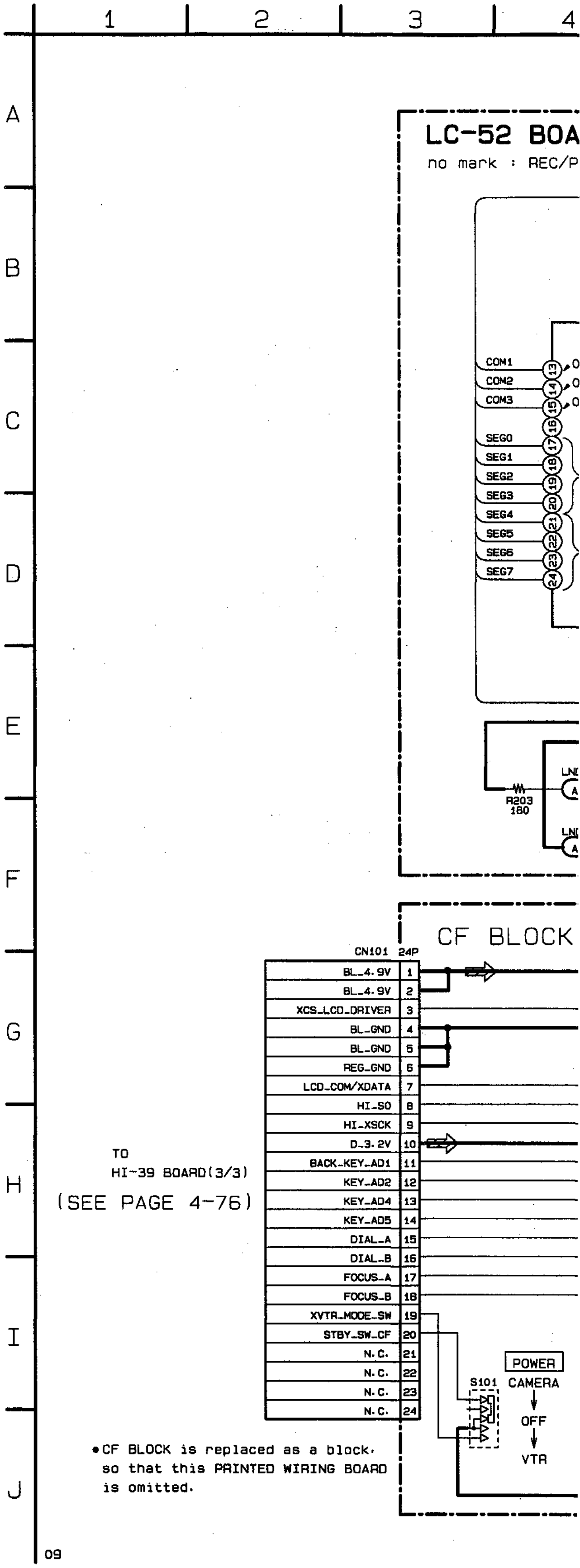


There are few cases that the part isn't mounted in this model is printed on this diagram.

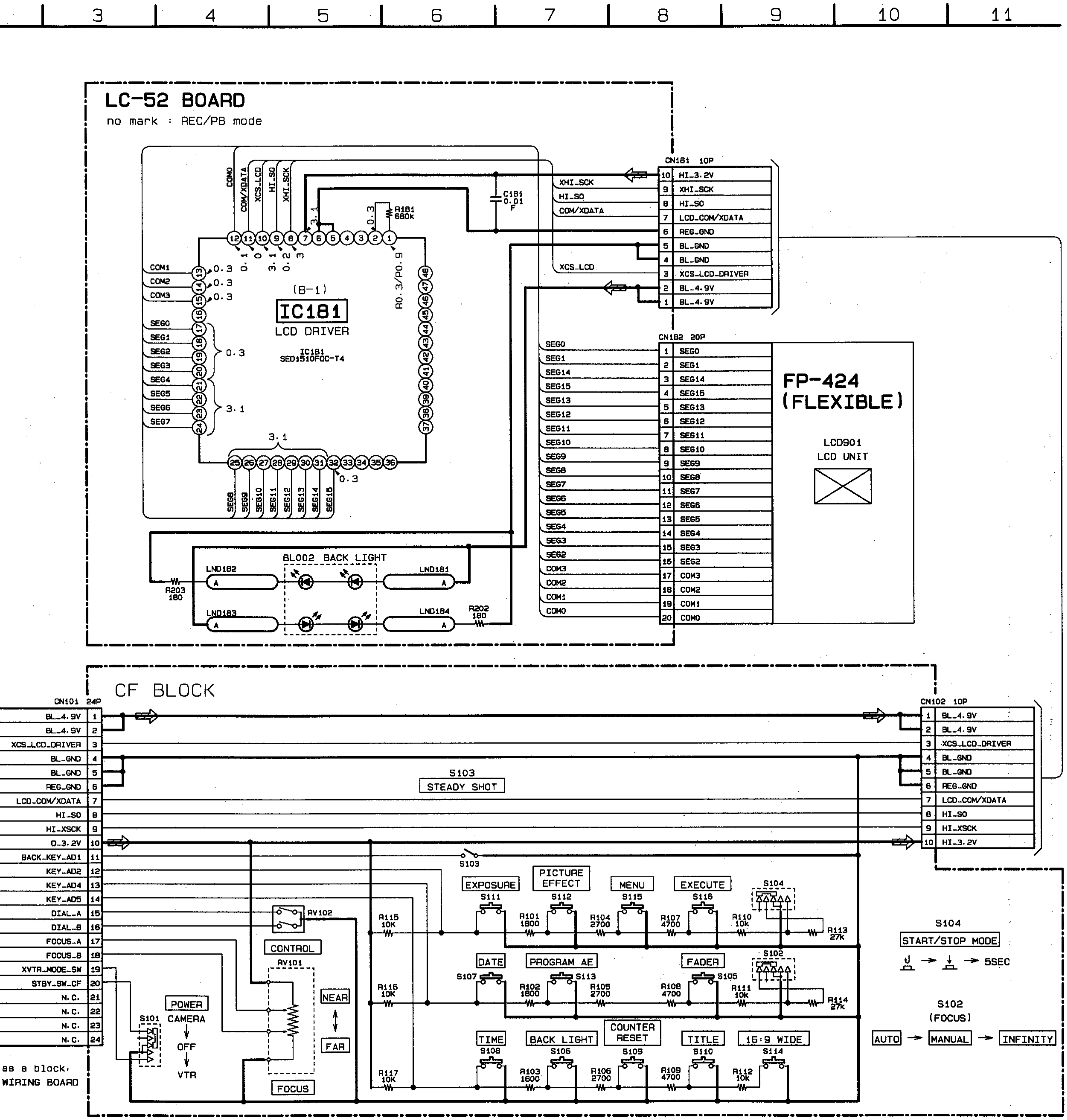

FK-66
(Control)
LC-52
(LCD Drive)
MA-268
(Audio)
LI-56
(Battery)

LC-52 (LCD DRIVE), CF BLOCK (FUNCTION KEYS)

— Ref No. LC-52 BOARD: 7,000 series —

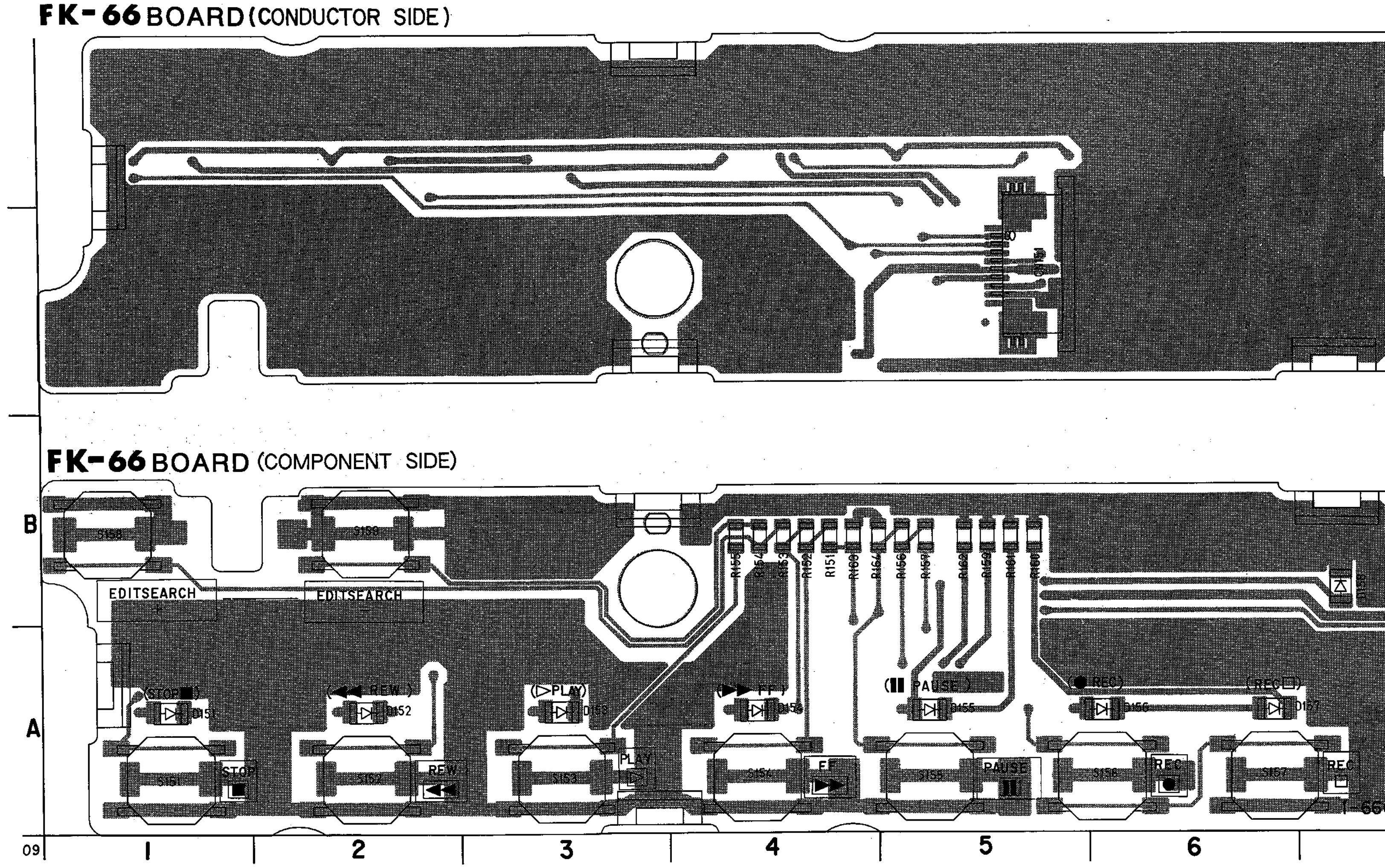

1
2
3
4
A
B
C
D
E
F
G
H
I
J
LC-52 BOA
no mark : REC/P
COM1
COM2
COM3
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
R203
180
CF BLOCK
CN101 24P
BL_4.9V 1
BL_4.9V 2
XCS_LCD_DRIVER 3
BL_GND 4
BL_GND 5
REG_GND 6
LCD_COM/XDATA 7
HI_SO 8
HI_XSCK 9
D_3.2V 10
BACK_KEY_AD1 11
KEY_AD2 12
KEY_AD4 13
KEY_AD5 14
DIAL_A 15
DIAL_B 16
FOCUS_A 17
FOCUS_B 18
XVTR_MODE_SW 19
STBY_SW_CF 20
N.C. 21
N.C. 22
N.C. 23
N.C. 24
TO
HI-39 BOARD(3/3)
(SEE PAGE 4-76)
S101
POWER
CAMERA
OFF
VTR
09

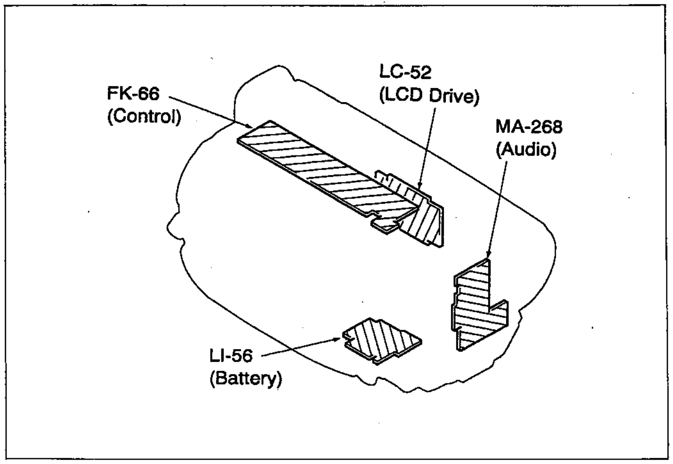
•CF BLOCK is replaced as a block, so that this PRINTED WIRING BOARD is omitted.


3
4
5
6
7
8
9
10
11
LC-52 BOARD
no mark : REC/PB mode
CN181 10P
HI_3.2V
XHI_SCK
HI_SO
LCD_COM/XDATA
REG_GND
BL_GND
XCS_LCD_DRIVER
BL_4.9V
XHI_SCK
HI_SO
COM/XDATA
XCS_LCD
C181 0.01 F
R181 680k
COM0
COM/XDATA
XCS_LCD
HI_SO
XHI_SCK
(B-1)
IC181
LCD DRIVER
IC181 SED1510F0C-T4
R0.3/P0.9
COM1
COM2
COM3
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
0.3
3.1
CN182 20P
SEG0
SEG1
SEG14
SEG15
SEG13
SEG12
SEG11
SEG10
SEG9
SEG8
SEG7
SEG6
SEG5
SEG4
SEG3
SEG2
COM3
COM2
COM1
COM0
FP-424 (FLEXIBLE)
LCD901
LCD UNIT
BL002 BACK LIGHT
LND182
LND181
LND183
LND184
R203 180
R202 180
CF BLOCK
CN101 24P
BL_4.9V
BL_4.9V
XCS_LCD_DRIVER
BL_GND
BL_GND
REG_GND
LCD_COM/XDATA
HI_SO
HI_XSCK
D_3.2V
BACK_KEY_AD1
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_MODE_SW
STBY_SW_CF
N.C.
N.C.
N.C.
N.C.
CN102 10P
BL_4.9V
BL_4.9V
XCS_LCD_DRIVER
BL_GND
BL_GND
REG_GND
LCD_COM/XDATA
HI_SO
HI_XSCK
HI_3.2V
S103
STEADY SHOT
S103
EXPOSURE S111
PICTURE EFFECT S112
MENU S115
EXECUTE S116
S104
DATE S107
PROGRAM AE S113
FADER S105
S102
TIME S108
BACK LIGHT S106
COUNTER RESET S109
TITLE S110
16:9 WIDE S114
R115 10K
R101 1800
R104 2700
R107 4700
R110 10k
R113 27k
R116 10K
R102 1800
R105 2700
R108 4700
R111 10k
R114 27k
R117 10K
R103 1800
R106 2700
R109 4700
R112 10k
RV102
CONTROL
RV101
NEAR
FAR
FOCUS
POWER
S101
CAMERA
OFF
VTR
S104
START/STOP MODE
5SEC
S102
(FOCUS)
AUTO
MANUAL
INFINITY
as a block.
WIRING BOARD

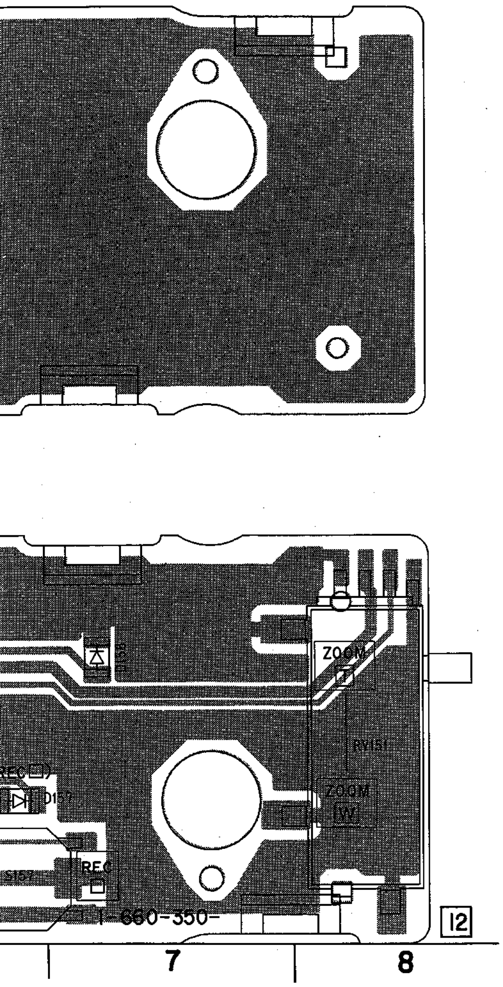
FK-66 (CONTROL) PRINTED WIRING BOARD

— Ref No. FK-66 BOARD: 3,000 series —


FK-66 BOARD (CONDUCTOR SIDE)
FK-66 BOARD (COMPONENT SIDE)
CN151
B
A
09
S158
S159
EDITSEARCH
EDITSEARCH
R155
R154
R153
R152
R151
R160
R164
R156
R157
R162
R159
R161
R163
D158
(STOP■)
(◀◀ REW)
(▷PLAY)
(▶▶ FF)
(❚❚ PAUSE)
(● REC)
(REC□)
D151
D152
D153
D154
D155
D156
D157
S151
S152
S153
S154
S155
S156
S157
STOP
REW
PLAY
FF
PAUSE
REC
REC
1
2
3
4
5
6


FK-66
(Control)
LC-52
(LCD Drive)
MA-268
(Audio)
LI-56
(Battery)

There are few cases that the part isn't mounted in this model is printed on this diagram.

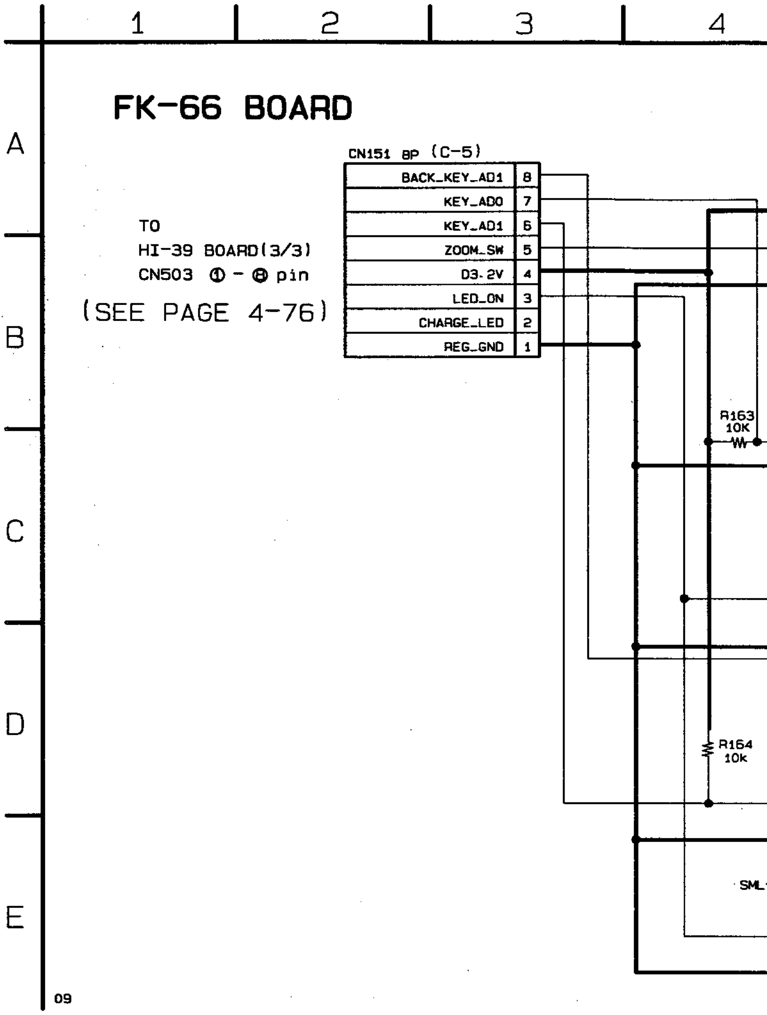

ZOOM
T
RV151
ZOOM
W
REC
D157
S157
REC
1-660-350-
12
7
8

FK-66 BOARD

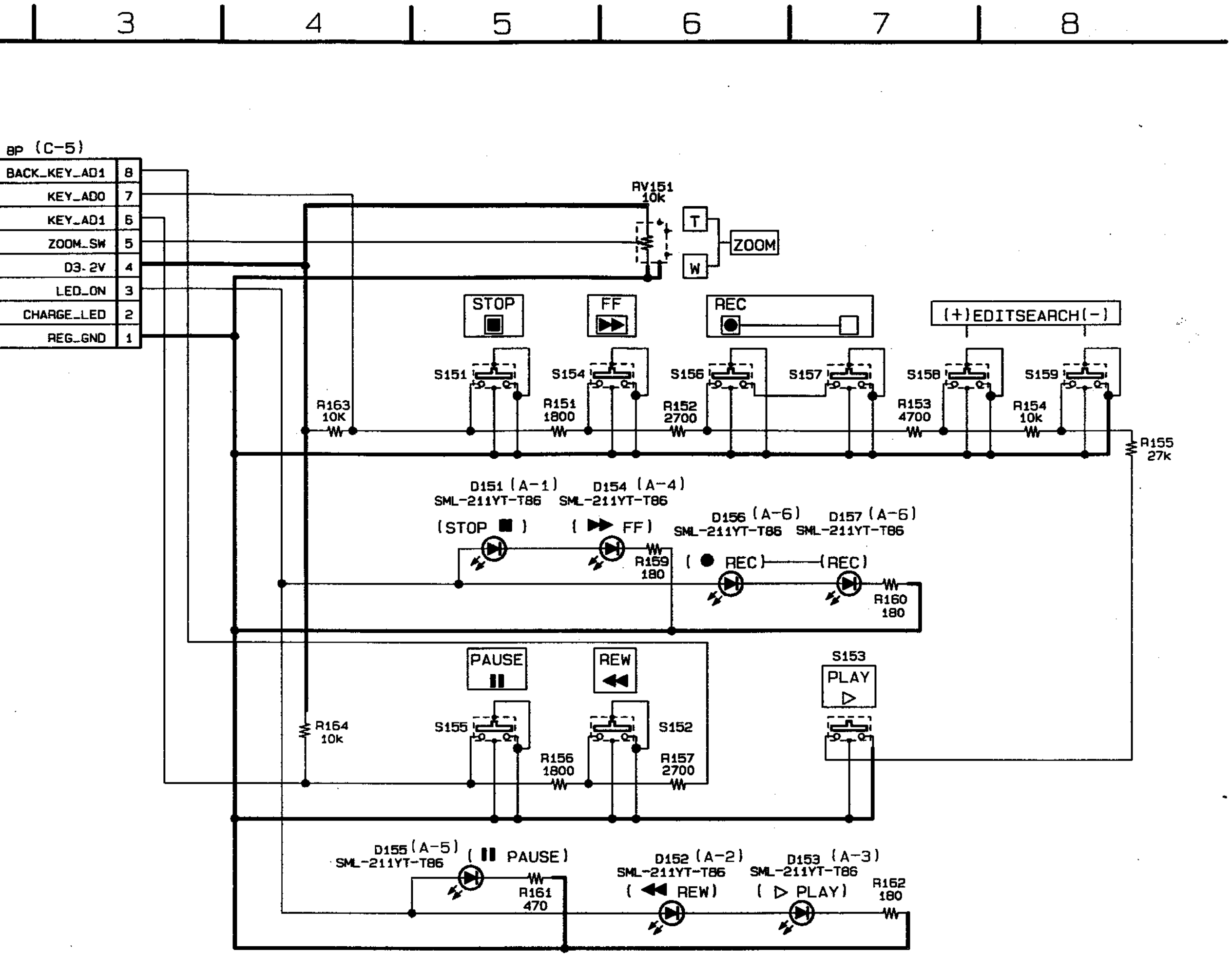
CN151	C-5
D151	A-1
D152	A-2
D153	A-3
D154	A-4
D155	A-5
D156	A-6
D157	A-6
R151	B-4
R152	B-4
R153	B-4
R154	B-4
R155	B-4
R156	B-5
R157	B-5
R159	B-5
R160	B-5
R161	B-5
R162	B-5
R163	B-4
R164	B-4
RV151	A-7
S151	A-1
S152	A-2
S153	A-3
S154	A-4
S155	A-5
S156	A-6
S157	A-6
S158	B-1
S159	B-2

FK-66 (CONTROL) SCHEMATIC DIAGRAM

— Ref No. FK-66 BOARD: 3,000 series —


1
2
3
4
A
B
C
D
E
FK-66 BOARD
CN151 8P (C-5)
BACK_KEY_AD1 8
KEY_AD0 7
KEY_AD1 6
ZOOM_SW 5
D3.2V 4
LED_ON 3
CHARGE_LED 2
REG_GND 1
TO
HI-39 BOARD(3/3)
CN503 ① - ⑧ pin
(SEE PAGE 4-76)
R163
10K
R164
10k
SML-
09

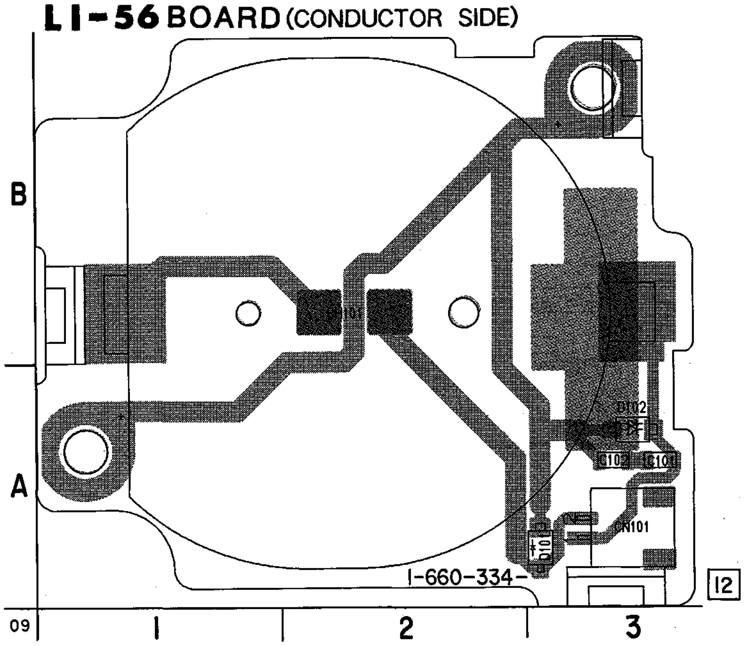
AGRAM


3
4
5
6
7
8
8P (C-5)
BACK_KEY_AD1 8
KEY_AD0 7
KEY_AD1 6
ZOOM_SW 5
D3.2V 4
LED_ON 3
CHARGE_LED 2
REG_GND 1
RV151 10k
T
W
ZOOM
STOP
FF
REC
(+)EDITSEARCH(-)
S151
S154
S156
S157
S158
S159
R163 10K
R151 1800
R152 2700
R153 4700
R154 10k
R155 27K
D151 (A-1) SML-211YT-T86
D154 (A-4) SML-211YT-T86
(STOP ■)
(▶▶ FF)
D156 (A-6) SML-211YT-T86
D157 (A-6) SML-211YT-T86
R159 180
(● REC)
(REC)
R160 180
PAUSE
REW
S153
PLAY
R164 10k
S155
S152
R156 1800
R157 2700
D155 (A-5) SML-211YT-T86
(❚❚ PAUSE)
R161 470
D152 (A-2) SML-211YT-T86
(◀◀ REW)
D153 (A-3) SML-211YT-T86
(▷ PLAY)
R162 180

LI-56 (BATTERY) PRINTED WIRING BOARD

— Ref No. LI-56 BOARD: 3,000 series —

There are few cases that the part isn't mounted in this model is printed on this diagram.

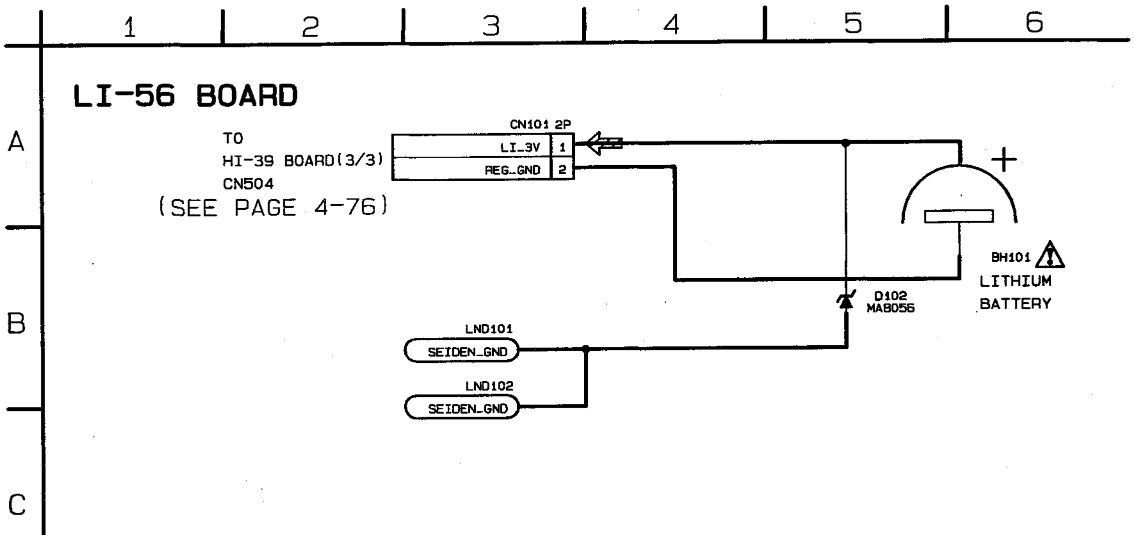

LI-56 BOARD (CONDUCTOR SIDE)
B
A
09
1
2
3
D101
D102
C102
C101
CN101
1-660-334-
12

LI-56 BOARD	
BH101	B-2
CN101	A-3
D102	A-3

- ▨ : pattern from the side which enables seeing.
- ▩ : pattern of the rear side.

LI-56 (BATTERY) SCHEMATIC DIAGRAM

— Ref No. LI-56 BOARD: 3,000 series —


1
2
3
4
5
6
A
B
C
LI-56 BOARD
TO
HI-39 BOARD(3/3)
CN504
(SEE PAGE 4-76)
CN101 2P
LI_3V 1
REG_GND 2
+
BH101
LITHIUM
BATTERY
D102
MA8056
LND101
SEIDEN_GND
LND102
SEIDEN_GND

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

D

09

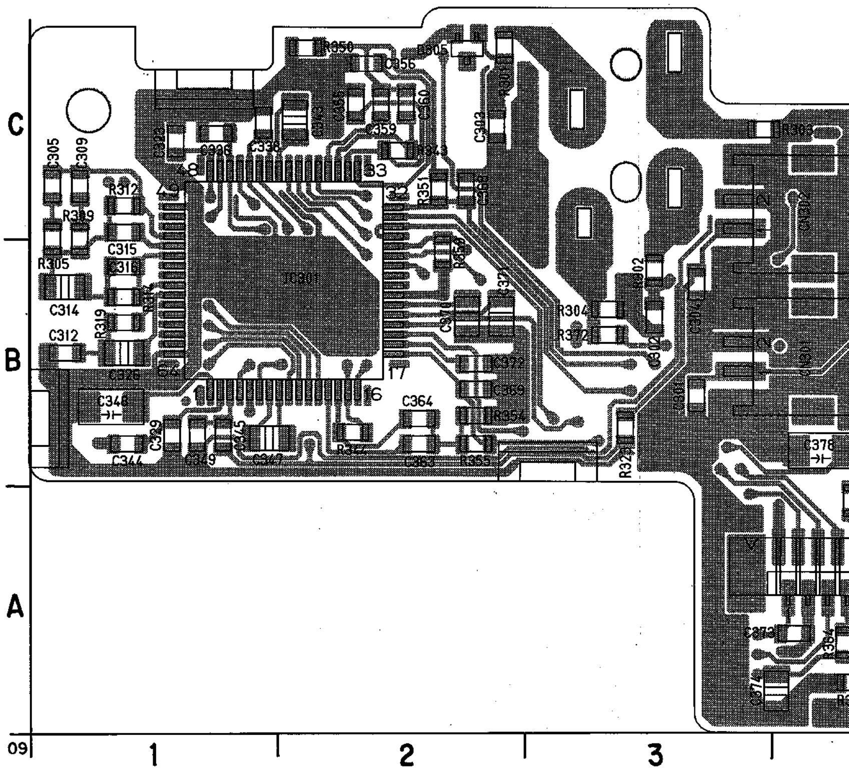
MA-268 (AUDIO) PRINTED WIRING BOARD

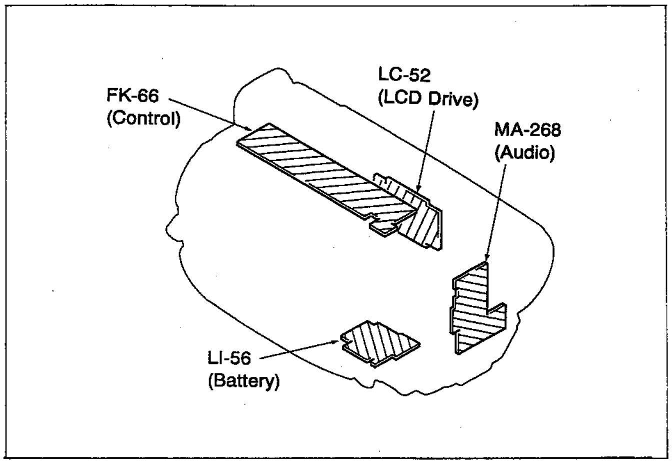
— Ref No. MA-268 BOARD: 4,000 series —

MA-268 BOARD

C302	B-3
C303	C-2
C314	B-1
C315	C-1
C323	C-1
C326	B-1
C329	B-1
C330	B-8
C335	C-8
C336	C-1
C337	C-8
C338	C-1
C339	B-7
C340	C-8
C341	C-8
C342	B-8
C343	C-2
C344	B-1
C345	B-1
C346	B-8
C347	B-1
C348	B-1
C349	B-1
C351	B-8
C354	C-7
C355	C-2
C356	C-2
C357	C-7
C359	C-2
C360	C-2
C361	B-8
C363	B-2
C364	B-2
C365	B-7
C366	B-7
C367	B-8
C368	C-2
C369	B-2
C370	B-2
C371	B-2
C372	B-2
C376	B-7
C377	A-5
C378	B-4
CN301	B-4
CN302	C-4
CN303	A-4
D303	C-5
D304	A-4
D305	C-2
IC301	B-2
IC303	A-5
J301	C-6
R301	C-2
R302	B-3
R303	C-3
R304	B-3
R312	C-1
R314	B-1
R318	C-7
R319	B-1
R323	B-3
R328	B-8
R330	C-8
R331	B-7
R332	B-7
R333	B-7
R334	B-7
R335	B-7
R336	B-8
R337	B-8
R338	B-8
R340	C-7
R342	C-7
R343	C-2
R344	B-2
R345	B-8
R346	B-8
R348	B-8
R349	B-8
R350	C-2
R351	C-2
R354	B-2
R355	B-2
R356	C-8
R357	B-7
R358	B-7
R362	B-7
R363	B-7
R364	A-4
R365	A-4
R370	B-5
R371	C-8
R373	A-4

MA-268 BOARD (CONDUCTOR SIDE)

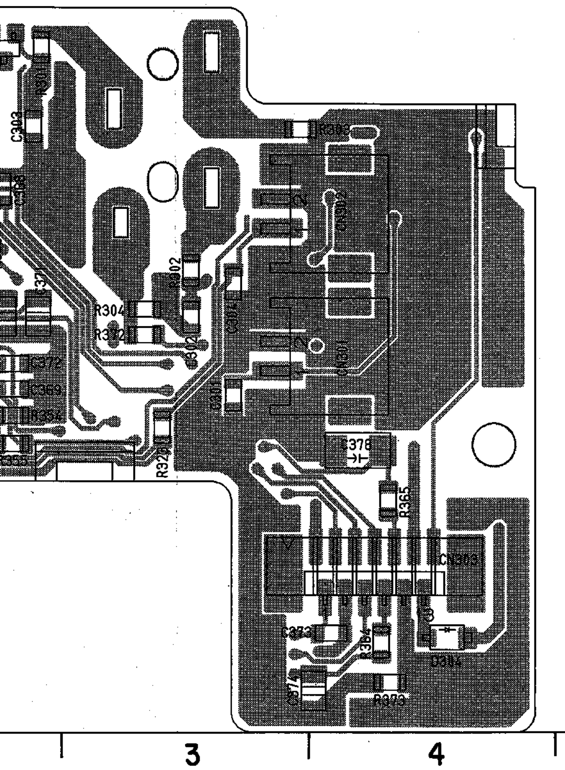

C
B
A
09
1
2
3
IC301
C305
C309
C323
R312
R309
C315
C316
R305
C314
C312
R319
C326
C348
C329
C344
C349
C345
C347
C364
R354
R355
C363
C369
C372
R304
R372
R302
C378
C302
R324
R351
R350
C353
C356
C360
C336
C338
C373
C374


FK-66
(Control)
LC-52
(LCD Drive)
MA-268
(Audio)
LI-56
(Battery)

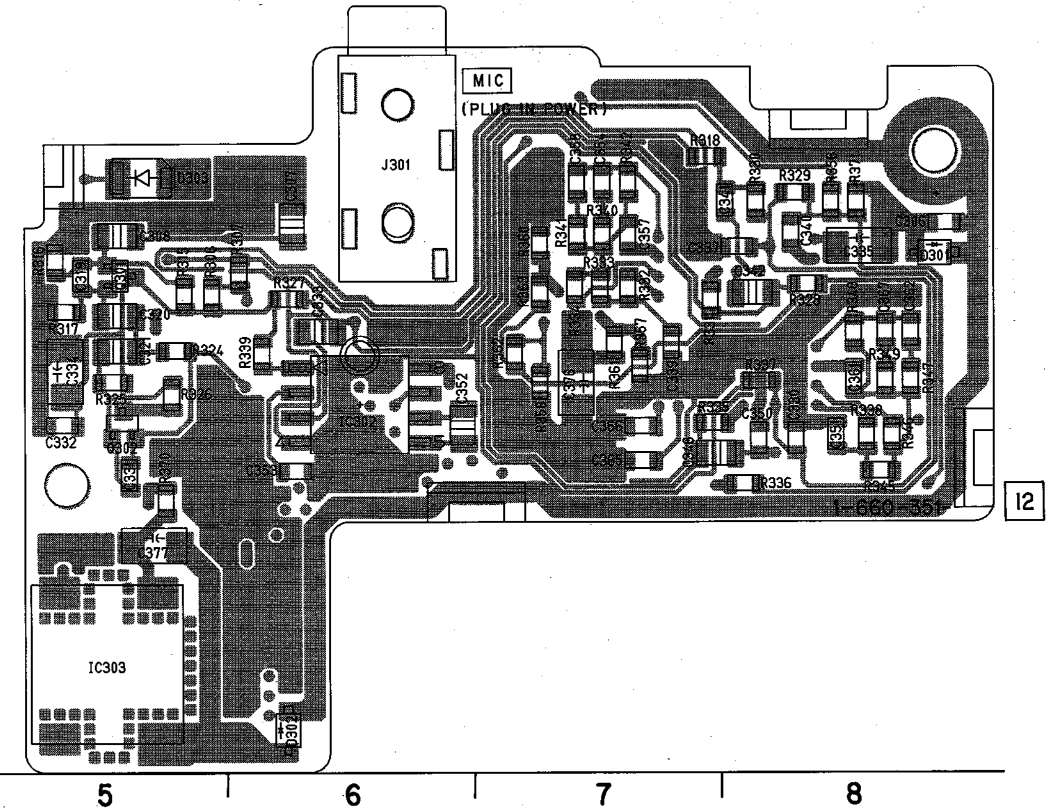
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.

OR SIDE)


C303
R301
R303
CN302
R302
R304
R312
C302
D302
IC301
IC372
C369
R384
R355
R320
C378
R365
CN303
C373
R364
D304
C374
R373
3
4

MA-268 BOARD (COMPONENT SIDE)


MIC
(PLUG IN POWER)
J301
D303
C307
R316
C308
C311
C301
C313
R327
R317
C320
R324
R339
C331
R325
R326
C332
Q302
R370
C353
IC302
C352
C377
IC303
D302
R318
R329
R340
R34
R383
C337
C342
R328
C340
D301
R335
R369
C376
R36
R337
R338
C365
C350
C385
C349
R336
R345
1-660-351
12
5
6
7
8

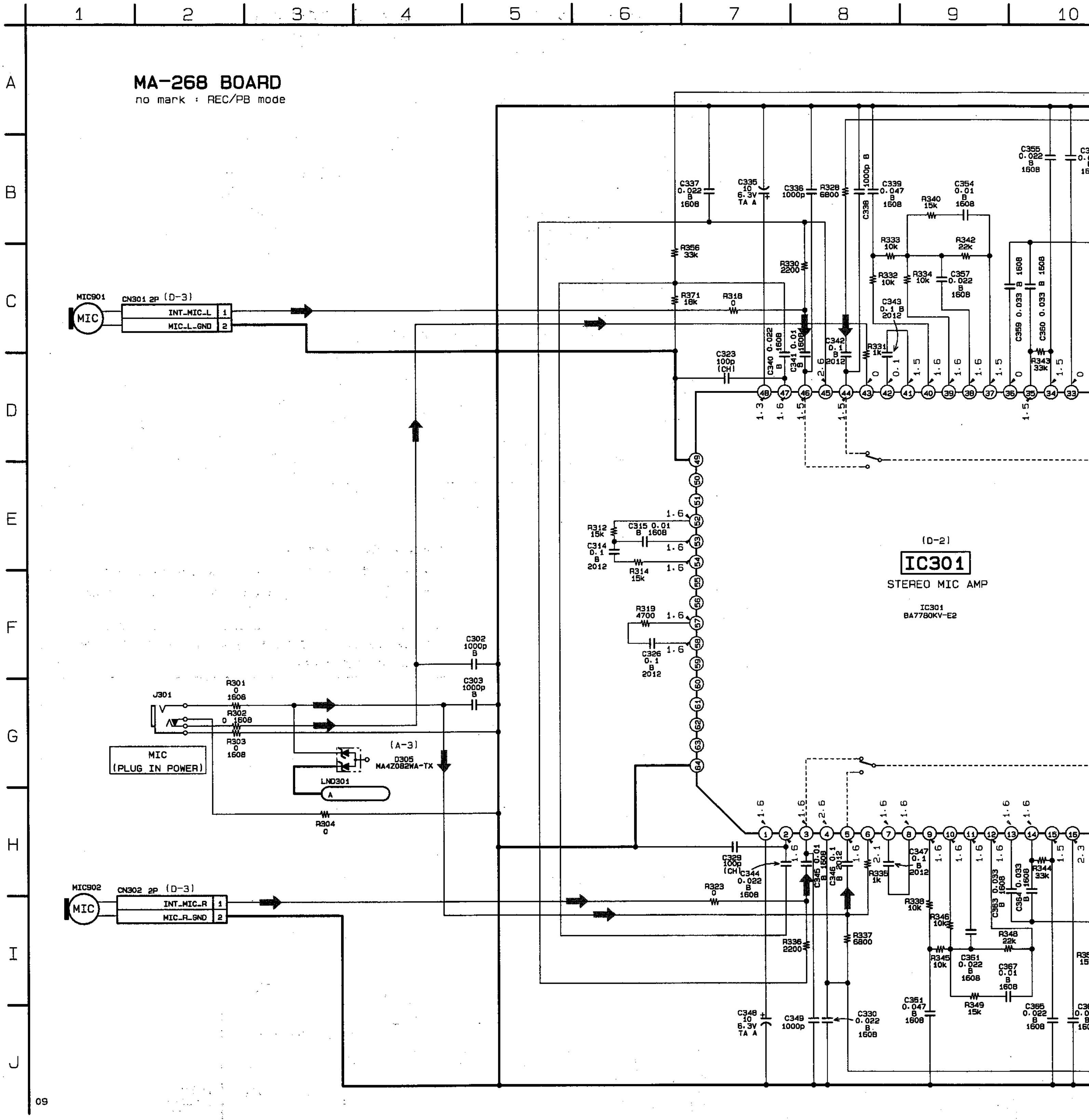
e patterns

agram.

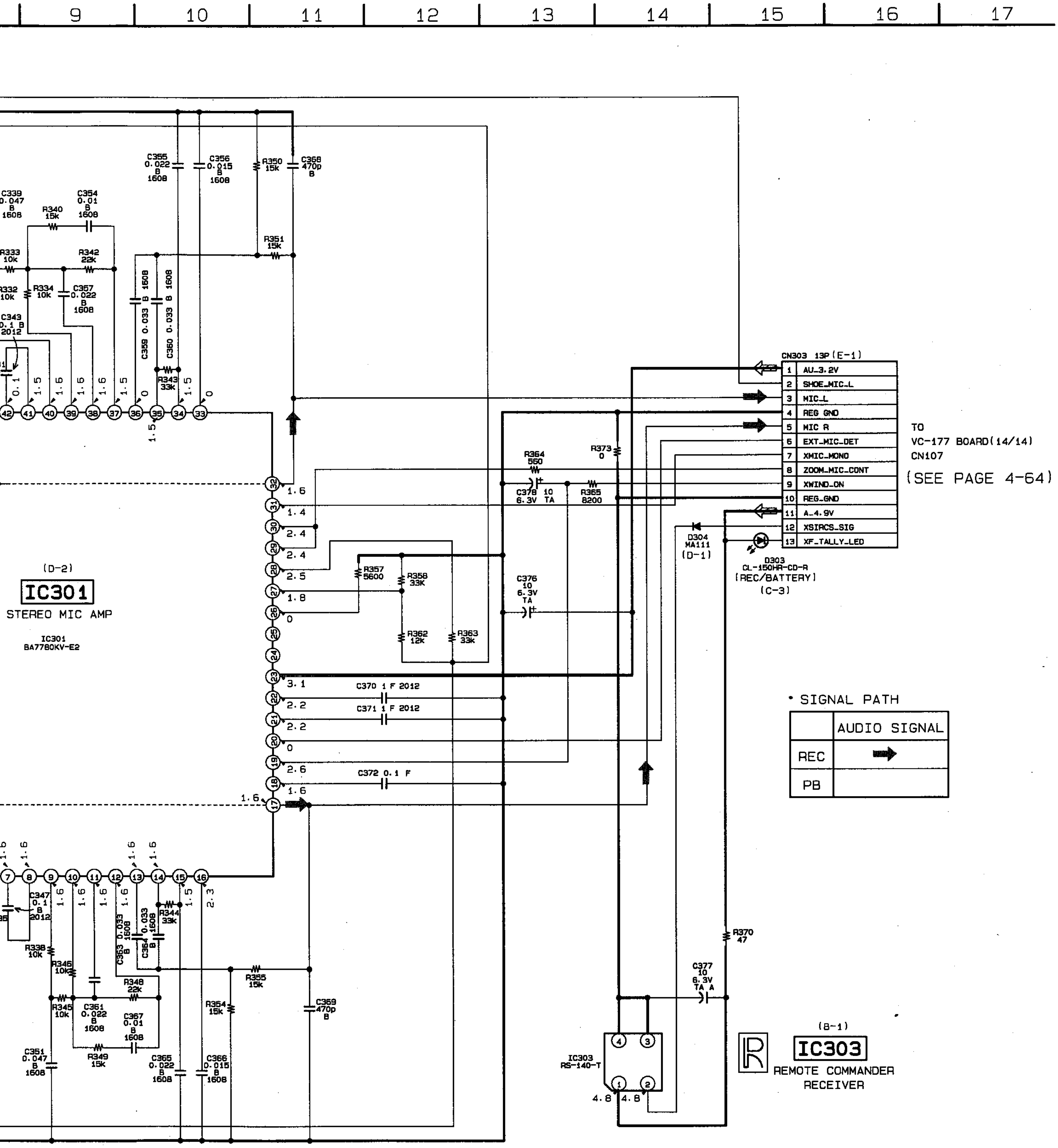
this model is

MA-268 (AUDIO) SCHEMATIC DIAGRAM

— Ref No. MA-268 BOARD: 4,000 series —

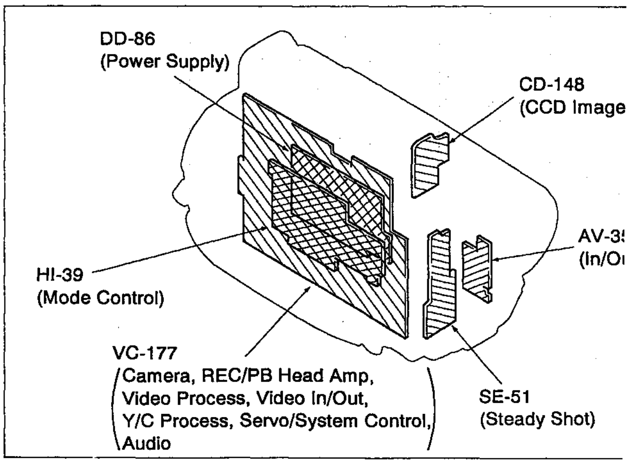


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
MA-268 BOARD
no mark : REC/PB mode
MIC901
CN301 2P (D-3)
INT_MIC_L
MIC_L_GND
MIC
C337 0.022 B 1608
C335 10 6.3V TA A
C336 1000p
R328 6800
C338 1000p B
C339 0.047 B 1608
R340 15k
C354 0.01 B 1608
C355 0.022 B 1608
R333 10k
R342 22k
R356 33k
R330 2200
R332 10k
R334 10k
C357 0.022 B 1608
C343 0.1 B 2012
R371 18k
R318 0
C340 0.022 B 1608
C341 0.01 B 1608
C342 0.1 B 2012
R331 1k
C323 100p (CH)
C359 0.033 B 1608
C360 0.033 B 1608
R343 33k
R312 15k
C315 0.01 B 1608
C314 0.1 B 2012
R314 15k
R319 4700
C326 0.1 B 2012
(D-2)
IC301
STEREO MIC AMP
IC301 BA7780KV-E2
C302 1000p B
C303 1000p B
J301
R301 0 1608
R302 0 1608
R303 0 1608
MIC (PLUG IN POWER)
(A-3)
D305 MA4Z082WA-TX
LND301
A
R304 0
C329 100p (CH)
C344 0.022 B 1608
C345 0.01 B 1608
C346 0.1 B 2012
R335 1k
C347 0.1 B 2012
R323 0
R338 10k
R346 10k
C363 0.033 B 1608
C364 0.033 B 1608
R344 33k
MIC902
CN302 2P (D-3)
INT_MIC_R
MIC_R_GND
R337 6800
R336 2200
R348 22k
R345 10k
C361 0.022 B 1608
C367 0.01 B 1608
R349 15k
C351 0.047 B 1608
C365 0.022 B 1608
C348 10 6.3V TA A
C349 1000p
C330 0.022 B 1608
09


9
10
11
12
13
14
15
16
17
(D-2)
IC301
STEREO MIC AMP
IC301
BA7780KV-E2
C355 0.022 B 1608
C356 0.015 B 1608
R350 15k
C368 470p B
C339 0.047 B 1608
C354 0.01 B 1608
R340 15k
R351 15k
R333 10k
R342 22k
R332 10k
R334 10k
C357 0.022 B 1608
C343 0.1 B 2012
C359 0.033 B 1608
C360 0.033 B 1608
R343 33k
R364 560
R373 0
C378 10 6.3V TA
R365 8200
R357 5600
R358 33K
R362 12k
R363 33k
C376 10 6.3V TA
C370 1 F 2012
C371 1 F 2012
C372 0.1 F
C347 0.1 B 2012
R344 33k
R338 10k
R346 10k
C363 0.033 B 1608
C364 0.033 B 1608
R348 22k
R355 15k
R345 10k
C361 0.022 B 1608
C367 0.01 B 1608
R354 15k
C369 470p B
R349 15k
C351 0.047 B 1608
C365 0.022 B 1608
C366 0.015 B 1608
R370 47
C377 10 6.3V TA A
CN303 13P (E-1)
1 AU_3.2V
2 SHOE_MIC_L
3 MIC_L
4 REG GND
5 MIC R
6 EXT_MIC_DET
7 XMIC_MONO
8 ZOOM_MIC_CONT
9 XWIND_ON
10 REG_GND
11 A_4.9V
12 XSIRCS_SIG
13 XF_TALLY_LED
TO
VC-177 BOARD(14/14)
CN107
(SEE PAGE 4-64)
D304 MA111 (D-1)
D303 CL-150HR-CD-R (REC/BATTERY) (C-3)
IC303 RS-140-T
(B-1)
IC303
REMOTE COMMANDER RECEIVER
4.8
4.8

• SIGNAL PATH

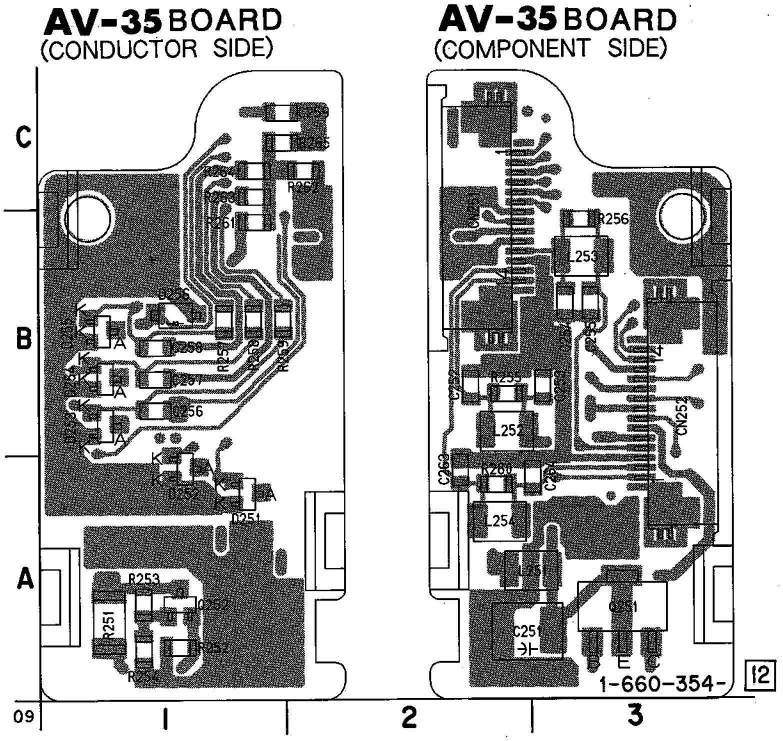
	AUDIO SIGNAL
REC	➡
PB	


DD-86
(Power Supply)
CD-148
(CCD Image
AV-3
(In/O
HI-39
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
SE-51
(Steady Shot)

AV-35 (IN/OUT), FP-378 (JACK) PRINTED WIRING BOARDS

— Ref No. AV-35 BOARD: 3,000 series —

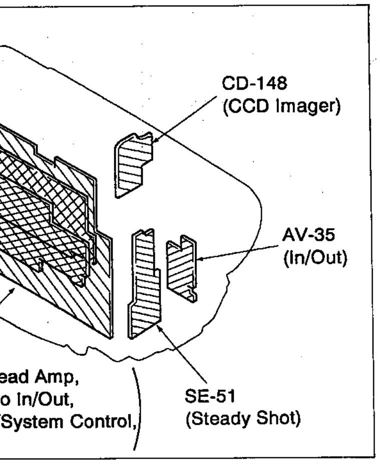
AV-35 BOA	
C251	A-2
CN251	B-2
CN252	B-3
D251	A-1
D252	A-1
D253	B-1
D254	B-1
D255	B-1
L251	A-3
Q251	A-3
Q252	A-1
R251	A-1
R252	A-1
R253	A-1
R254	A-1
R255	B-2
R256	B-3
R257	B-1
R258	B-1
R259	B-2
R260	A-2
R261	B-1
R262	C-2
R263	C-1
R264	C-1



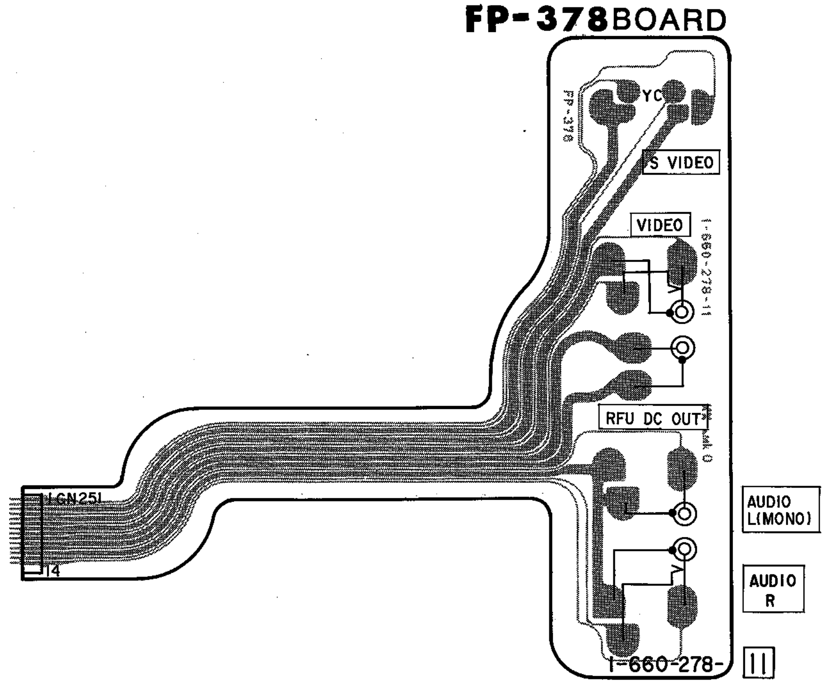
AV-35 BOARD
(CONDUCTOR SIDE)
AV-35 BOARD
(COMPONENT SIDE)
C
B
A
09
1
2
3
R263
R262
R264
R265
R261
D255
D254
D253
R258
R257
R259
R255
R256
D252
D251
R253
Q252
R251
R252
R254
L253
L252
L251
L254
C252
C253
R260
CN251
CN252
C251
Q251
B E C
1-660-354-
12

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.



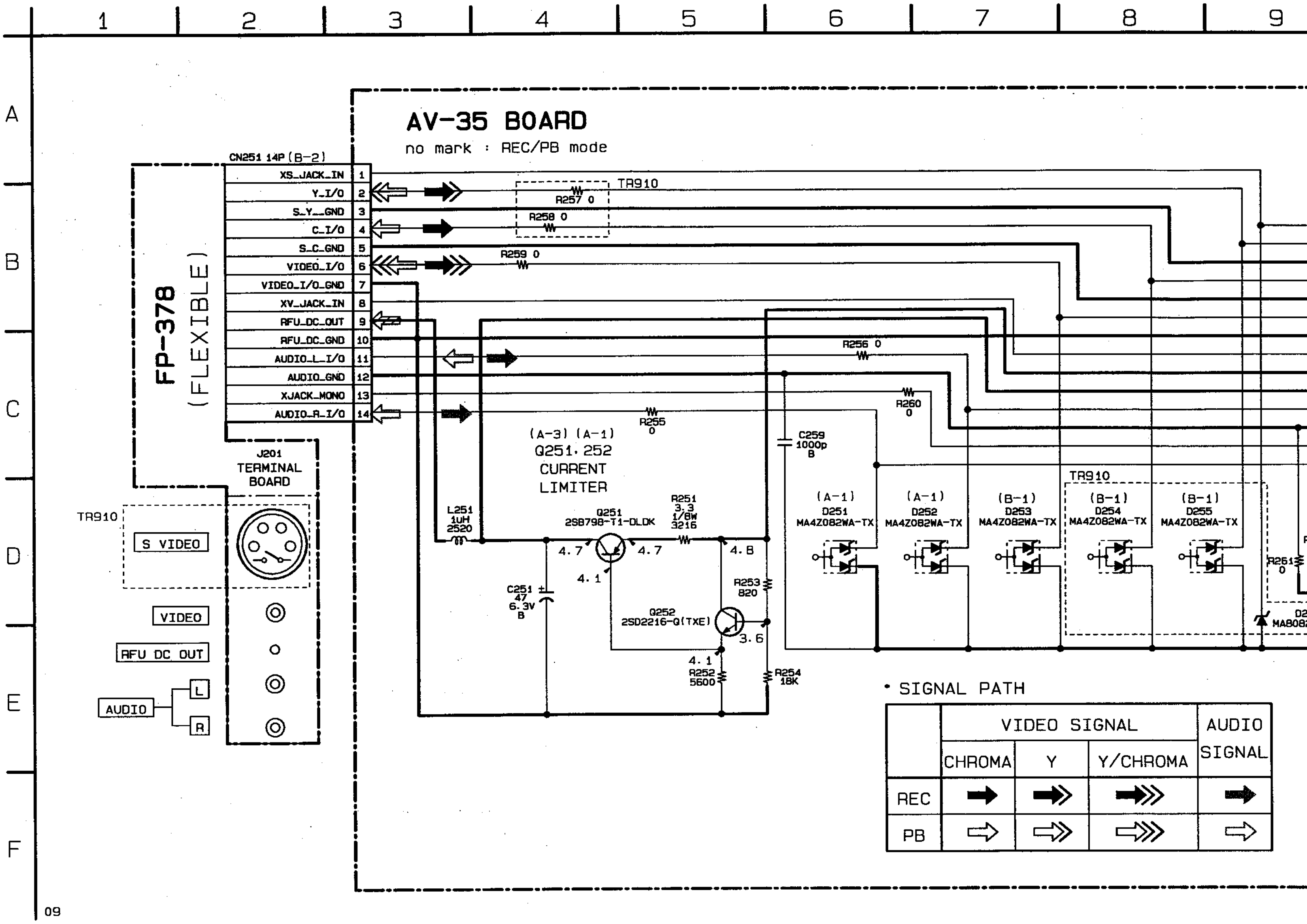
CD-148
(CCD Imager)
AV-35
(In/Out)
ead Amp,
o In/Out,
System Control,
SE-51
(Steady Shot)



FP-378 BOARD
FP-378
YC
S VIDEO
VIDEO
1-660-278-11
RFU DC OUT
CN251
14
AUDIO L(MONO)
AUDIO R
1-660-278-
11

AV-35 (IN/OUT), FP-378 (JACK) SCHEMATIC DIAGRAMS

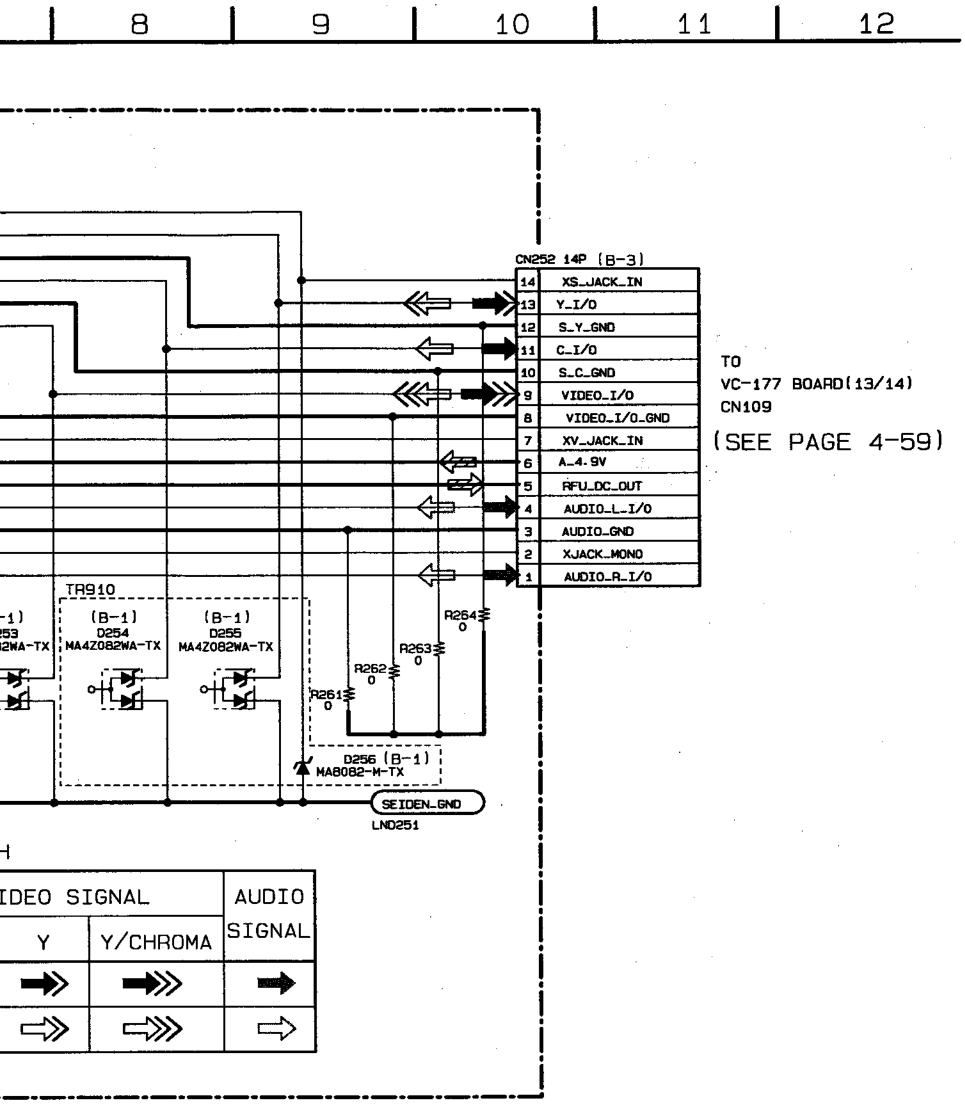
— Ref No. AV-35 BOARD: 3,000 series —



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
AV-35 BOARD
no mark : REC/PB mode
CN251 14P (B-2)
XS_JACK_IN 1
Y_I/O 2
S_Y_GND 3
C_I/O 4
S_C_GND 5
VIDEO_I/O 6
VIDEO_I/O_GND 7
XV_JACK_IN 8
RFU_DC_OUT 9
RFU_DC_GND 10
AUDIO_L_I/O 11
AUDIO_GND 12
XJACK_MONO 13
AUDIO_R_I/O 14
FP-378
(FLEXIBLE)
J201
TERMINAL
BOARD
TR910
S VIDEO
VIDEO
RFU DC OUT
AUDIO
L
R
TR910
R257 0
R258 0
R259 0
R256 0
R260 0
R255 0
(A-3) (A-1)
Q251, 252
CURRENT
LIMITER
L251 1uH 2520
Q251 2SB798-T1-DLDK
R251 3.3 1/8W 3216
4.7
4.7
4.1
4.8
C251 47 6.3V B
Q252 2SD2216-Q(TXE)
R253 820
3.6
4.1
R252 5600
R254 18K
C259 1000p B
TR910
(A-1) D251 MA4Z082WA-TX
(A-1) D252 MA4Z082WA-TX
(B-1) D253 MA4Z082WA-TX
(B-1) D254 MA4Z082WA-TX
(B-1) D255 MA4Z082WA-TX
R261 0
D2
MA808
09

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➤	➡➤➤	➡
PB	⇨	⇨➢	⇨➢➢	⇨


8
9
10
11
12
CN252 14P (B-3)
14 XS_JACK_IN
13 Y_I/O
12 S_Y_GND
11 C_I/O
10 S_C_GND
9 VIDEO_I/O
8 VIDEO_I/O_GND
7 XV_JACK_IN
6 A_4.9V
5 RFU_DC_OUT
4 AUDIO_L_I/O
3 AUDIO_GND
2 XJACK_MONO
1 AUDIO_R_I/O
TO
VC-177 BOARD(13/14)
CN109
(SEE PAGE 4-59)
TR910
-1)
253
2WA-TX
(B-1)
D254
MA4Z082WA-TX
(B-1)
D255
MA4Z082WA-TX
R261 0
R262 0
R263 0
R264 0
D256 (B-1)
MA8082-M-TX
SEIDEN_GND
LND251
H
IDEO SIGNAL
Y
Y/CHROMA
AUDIO SIGNAL

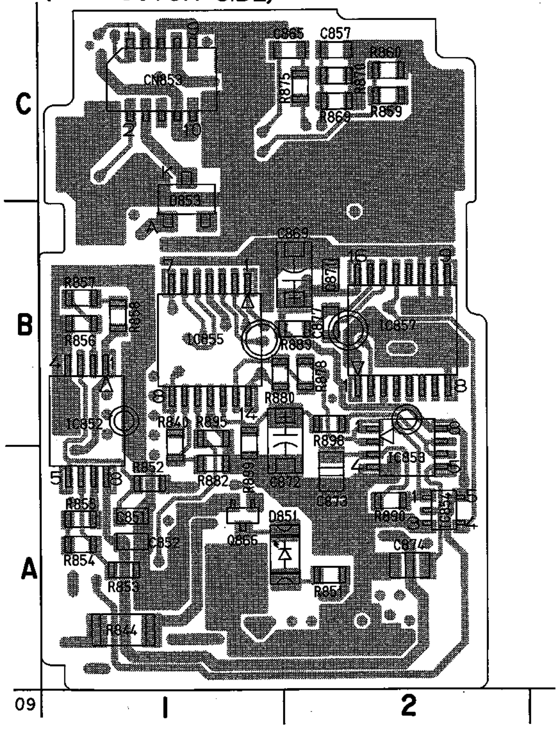
VF-95 (COLOR EVF), VF-96 (COLOR EVF), LB-45 (BACK LIGHT), FP-394 (SENSOR) PRINTED WIRING BOARDS

— Ref No. VF-95, VF-96 and LB-45 BOARDS: 5,000 series —

VF-95 BOARD

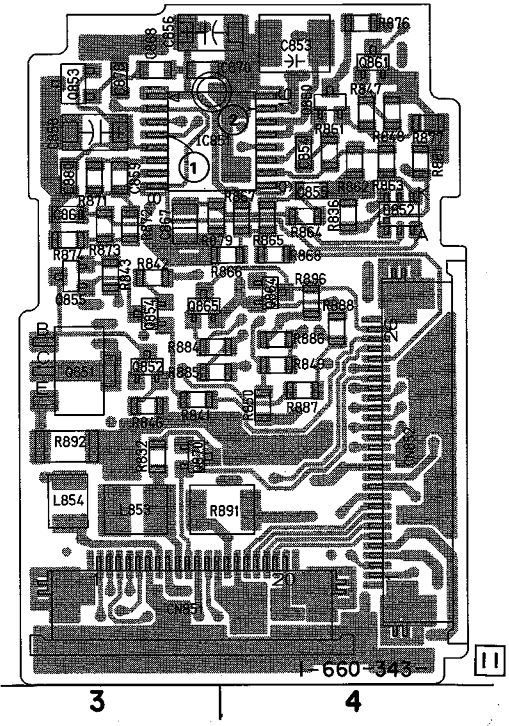
C851	A-1	R832	A-3
C852	A-1	R836	B-4
C853	C-4	R840	B-1
C854	C-4	R841	B-3
C855	C-4	R842	B-3
C856	C-3	R843	B-3
C857	C-2	R844	A-1
C858	C-3	R846	B-3
C859	C-3	R849	B-4
C860	B-3	R850	B-4
C865	C-2	R851	A-2
C867	B-3	R852	A-1
C868	C-3	R853	A-1
C869	B-2	R854	A-1
C870	C-3	R855	A-1
C871	B-2	R856	B-1
C872	B-2	R857	B-1
C873	A-2	R858	B-1
C874	A-2	R859	C-2
C877	B-2	R860	C-2
C878	C-3	R861	C-4
		R862	C-4
CN851	A-3	R863	C-4
CN852	A-4	R864	B-4
CN853	C-1	R865	B-4
		R867	B-4
D851	A-2	R868	B-4
D852	B-4	R869	C-2
D853	C-1	R870	C-2
		R871	C-3
IC851	C-3	R872	B-3
IC852	B-1	R873	B-3
IC853	B-2	R874	B-3
IC854	A-2	R875	C-2
IC855	B-1	R878	B-2
IC857	B-2	R879	B-4
		R880	B-2
L853	A-3	R881	C-4
L854	A-3	R882	A-1
		R884	B-3
Q851	B-3	R885	B-3
Q852	B-3	R886	B-4
Q853	C-3	R887	B-4
Q854	B-3	R888	B-4
Q855	B-3	R889	B-2
Q864	B-4	R890	A-2
Q865	B-3	R891	A-4
Q866	A-1	R892	B-3
Q870	A-3	R895	B-1
		R896	B-4
		R898	B-2
		R899	B-1

VF-95 BOARD
(CONDUCTOR SIDE)



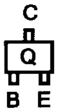
C
B
A
09
1
2
CN853
C865
C857
R860
R875
R870
R869
R859
Q853
C869
R857
R856
IC855
R883
IC857
R878
IC852
R840
R895
R880
R898
IC853
R852
R882
R855
C851
C852
Q866
D851
C873
R890
C874
R854
R853
R851
R844

VF-95 BOARD
(COMPONENT SIDE)



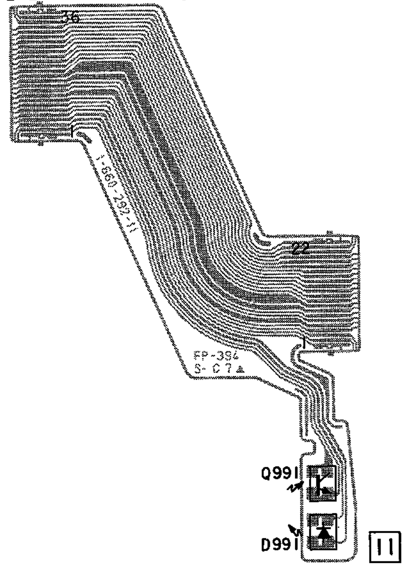
3
4
R876
C853
Q861
C870
R850
R877
IC851
R861
R849
R862
R863
Q852
R836
R864
R879
R865
R868
R871
R873
R872
R842
R866
R896
Q865
R888
R884
R886
R885
R845
R887
R841
Q851
R892
L854
L853
R891
CN851
1-660-343-
11

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

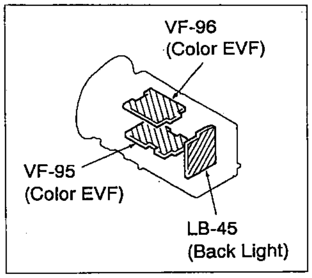


There are few cases that the part isn't mounted in this model is printed on this diagram.

FP-394 BOARD



36
1-660-292-11
22
FP-394
S-C7
Q991
D991
11



VF-96
(Color EVF)
VF-95
(Color EVF)
LB-45
(Back Light)

VF-96 BO

C901
C902
C903
C904
C905
C906
C907
C908
C909
C910
C911
C912
C913
C914
C916
C917
C918
C919
C920
C921
C922
C924
C925
C927
C929
C930
C931
C932
C933
C934
C935

CN901
CN902

D901

IC901
IC902
IC904

L901
L902
L903
L904
L905

LB-45 B

C801
C802
C803
C804
C805
C806

CN801

L801
L802

ND801

Q801

R802

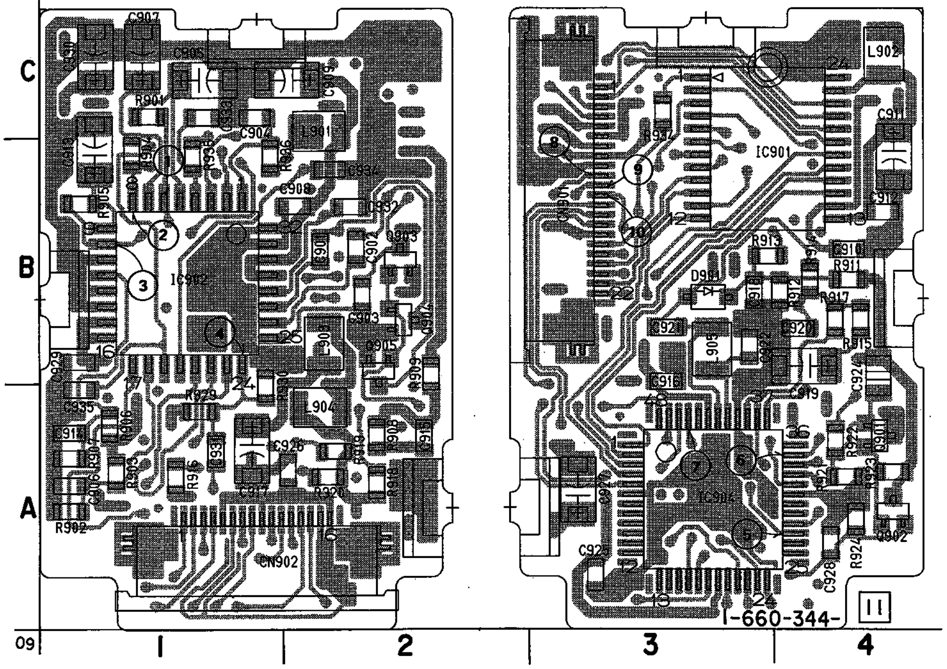
T801

There
printed

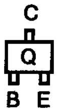
VF-96 BOARD

C901	B-2	Q901	A-4
C902	B-2	Q902	A-4
C903	B-2		
C904	C-1	R901	C-1
C905	C-1	R902	A-1
C906	A-1	R903	A-1
C907	C-1	R904	B-1
C908	B-2	R905	B-1
C909	C-2	R906	A-1
C910	B-4	R907	A-1
C911	B-4	R908	A-2
C912	B-4	R909	B-2
C913	B-1	R911	B-4
C914	A-1	R912	B-4
C916	B-3	R913	B-3
C917	A-1	R914	B-4
C918	B-3	R915	B-4
C919	B-4	R917	B-4
C920	B-4	R921	A-4
C921	B-3	R922	A-4
C922	B-3	R923	A-4
C924	B-4	R924	A-4
C925	A-3	R929	A-1
C927	A-3	R930	A-1
C929	B-1	R934	C-3
C930	C-1	R935	B-1
C931	A-1	R936	B-1
C932	B-2		
C933	C-1		
C934	B-2		
C935	A-1		
CN901	B-3		
CN902	A-1		
D901	B-3		
IC901	B-3		
IC902	B-1		
IC904	A-3		
L901	C-2		
L902	C-4		
L903	B-2		
L904	A-2		
L905	B-3		

VF-96 BOARD(CONDUCTOR SIDE) VF-96BOARD(COMPONENT SIDE)


C
B
A
09
1
2
3
4
IC901
IC902
IC904
CN902
L901
L902
L904
L905
D901
Q901
Q902
1-660-344-
11

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

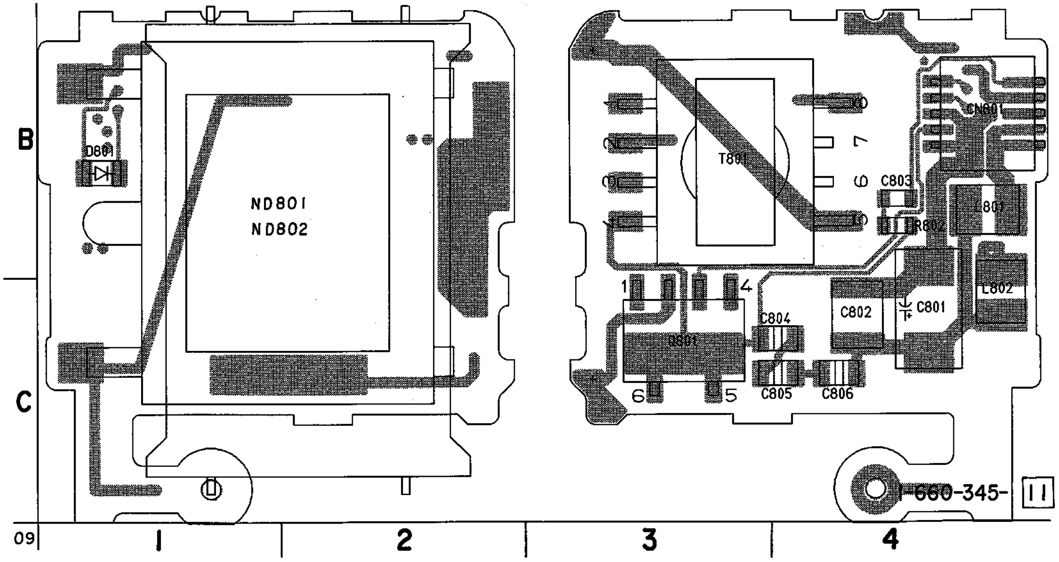


There are few cases that the part isn't mounted in this model is printed on this diagram.

LB-45 BOARD

C801	A-4
C802	A-4
C803	B-4
C804	A-3
C805	A-3
C806	A-4
CN801	B-4
L801	B-4
L802	A-4
ND801	B-1
Q801	A-3
R802	B-4
T801	B-3

LB-45BOARD(CONDUCTOR SIDE) LB-45BOARD(COMPONENT SIDE)

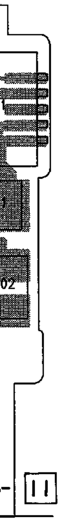

B
C
09
1
2
3
4
D801
ND801
ND802
T801
CN801
C801
C802
C803
C804
C805
C806
L801
L802
R802
Q801
1-660-345-
11

There are few cases that the part isn't mounted in this model is printed on this diagram.

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

SIDE)

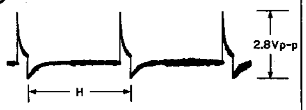
DE)



e patterns
agram.

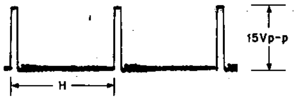
VF-95 BOARD

①



IC851 ④ REC/PB

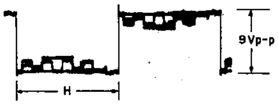
②



IC851 ⑮ REC/PB

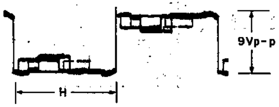
VF-96 BOARD

①



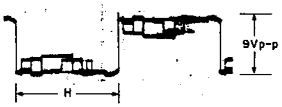
IC902 ⑥ REC/PB

②



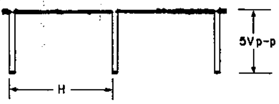
IC902 ⑧ REC/PB

③



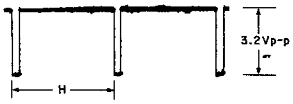
IC902 ⑩ REC/PB

④



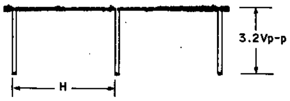
IC902 ㉔ REC/PB

⑤



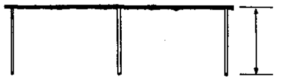
IC904 ㉗ REC/PB

⑥



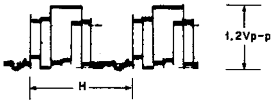
IC904 ㉟ REC/PB

⑦



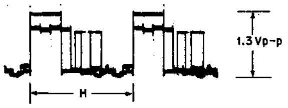
IC904 ㊺ REC/PB

⑧



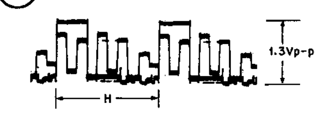
CN901 ⑩ REC/PB

⑨



CN901 ⑪ REC/PB

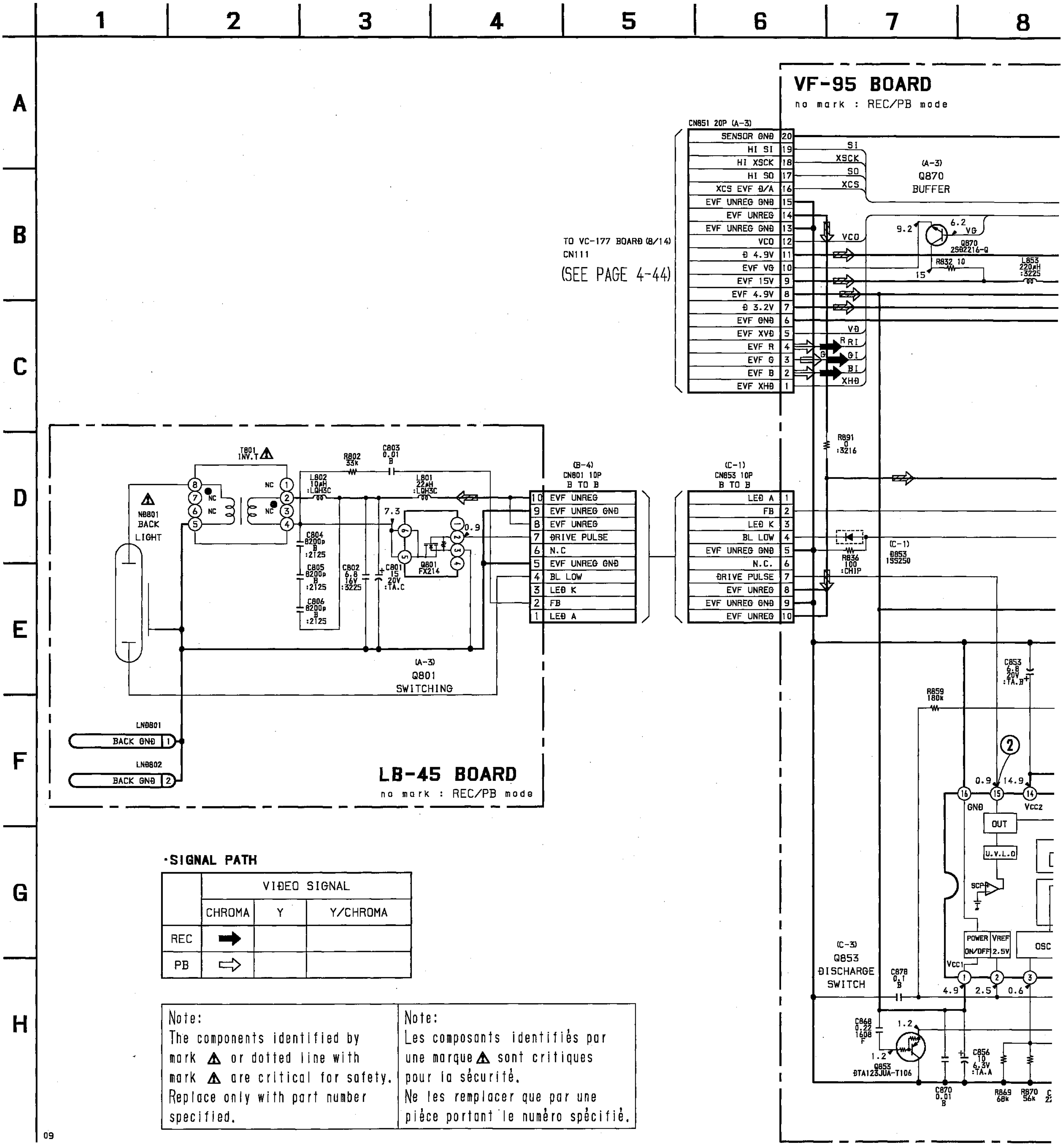
⑩



CN901 ⑫ REC/PB

VF-95 (COLOR EVF), VF-96 (COLOR EVF), LB-45 (BACK LIGHT), FP-394 (SENSOR) SCHEMATIC DIAGRAMS

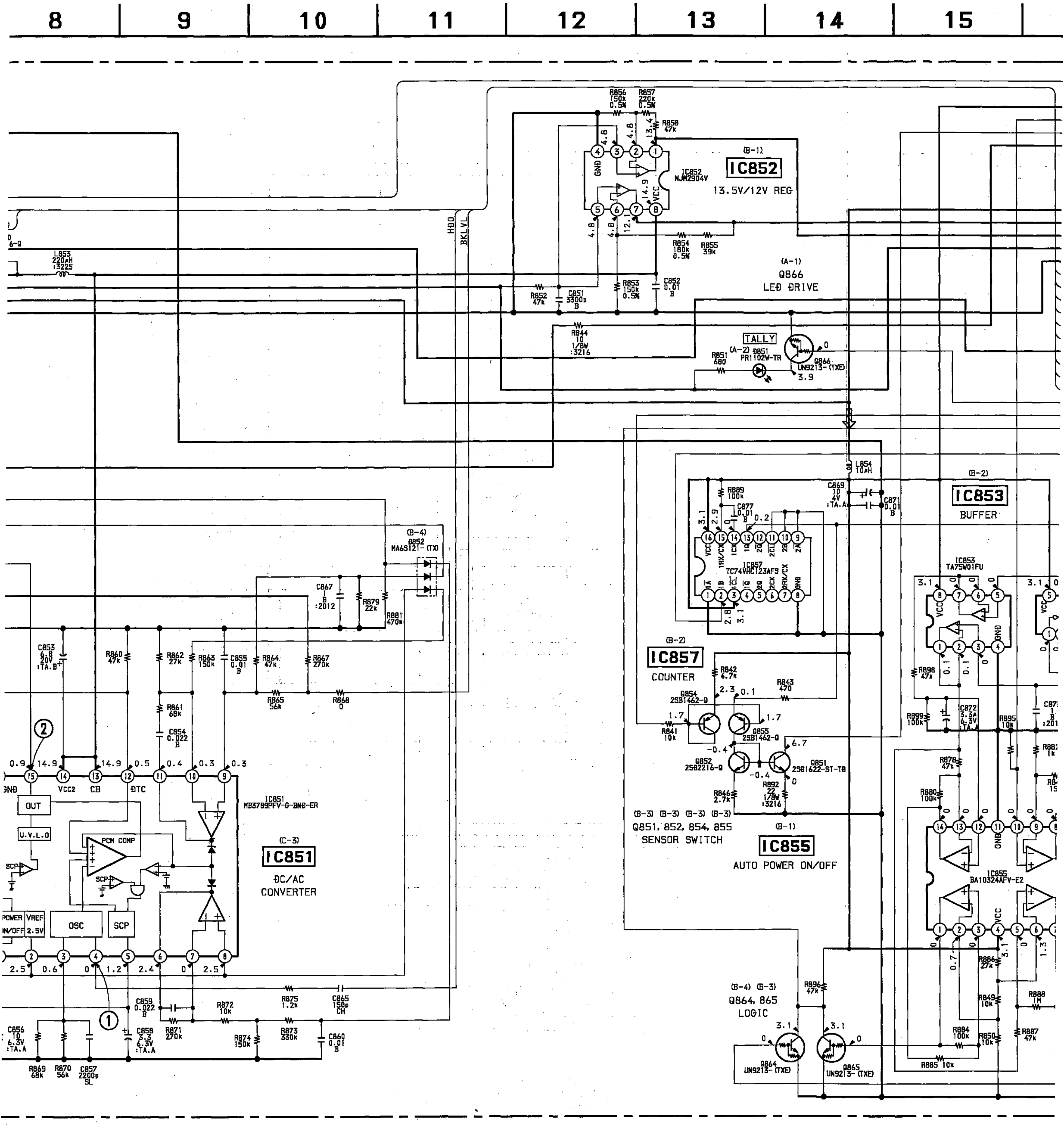
— Ref No. VF-95, VF-96 and LB-45 BOARDS: 5,000 series —

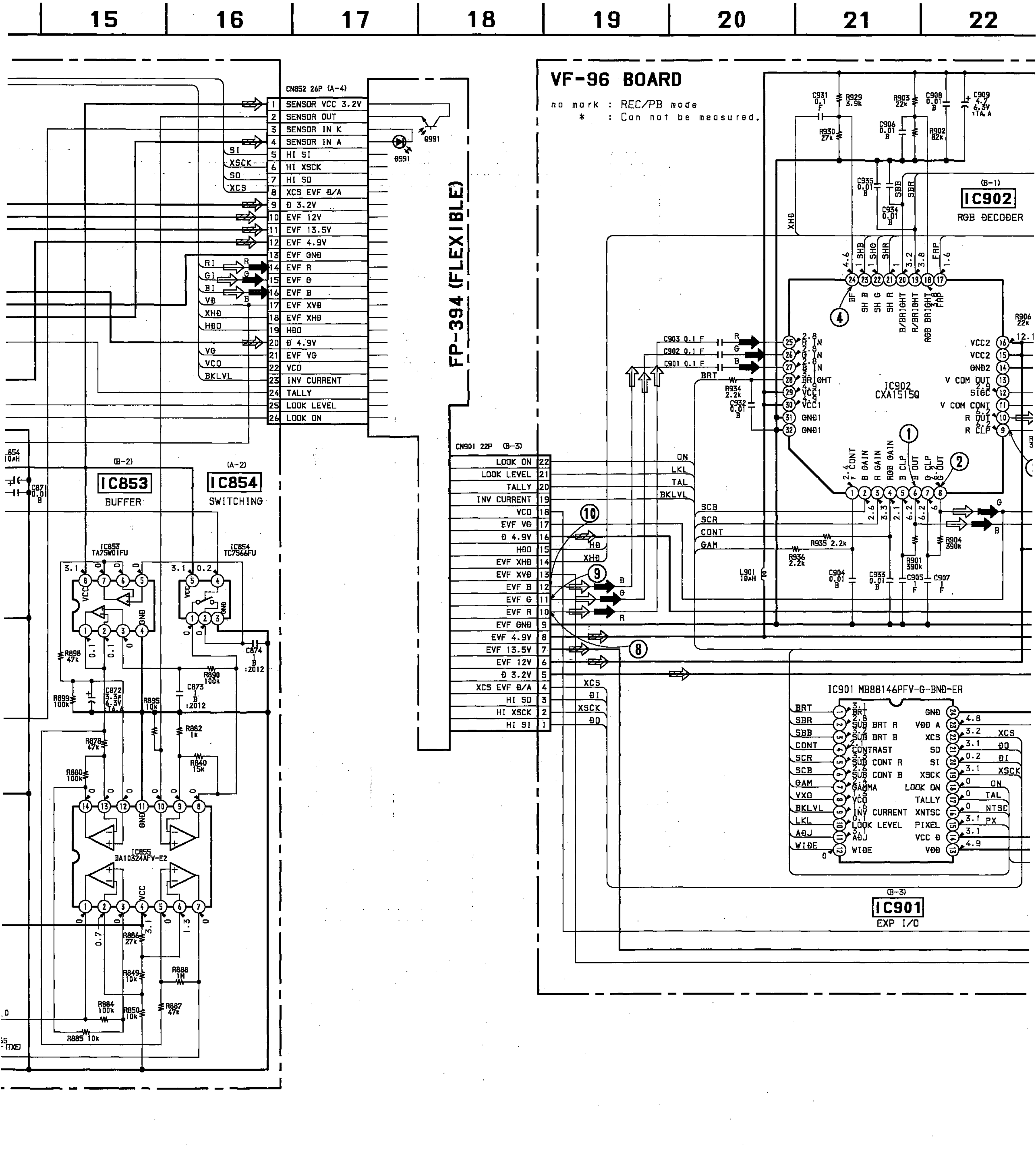

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
VF-95 BOARD
no mark : REC/PB mode
CN851 20P (A-3)
SENSOR GND 20
HI SI 19
HI XSCK 18
HI SO 17
XCS EVF D/A 16
EVF UNREG GND 15
EVF UNREG 14
EVF UNREG GND 13
VCO 12
D 4.9V 11
EVF VG 10
EVF 15V 9
EVF 4.9V 8
D 3.2V 7
EVF GND 6
EVF XVD 5
EVF R 4
EVF G 3
EVF B 2
EVF XHD 1
TO VC-177 BOARD (8/14) CN111
(SEE PAGE 4-44)
SI
XSCK
SO
XCS
VCO
VD
RI
GI
BI
XHD
(A-3) Q870 BUFFER
9.2
6.2
VG
Q870 2SB2216-Q
R832 10
15
L853 220µH :3225
R891 0 :3216
(B-4) CN801 10P B TO B
10 EVF UNREG
9 EVF UNREG GND
8 EVF UNREG
7 DRIVE PULSE
6 N.C
5 EVF UNREG GND
4 BL LOW
3 LED K
2 FB
1 LED A
(C-1) CN853 10P B TO B
LED A 1
FB 2
LED K 3
BL LOW 4
EVF UNREG GND 5
N.C. 6
DRIVE PULSE 7
EVF UNREG 8
EVF UNREG GND 9
EVF UNREG 10
R836 100 :CHIP
(C-1) D853 1SS250
T801 INV.T
NC
ND801 BACK LIGHT
R802 33k
C803 0.01 B
L802 10µH :LQH3C
L801 22µH :LQH3C
7.3
0.9
C804 8200p B :2125
C805 8200p B :2125
C806 8200p B :2125
C802 6.8 16V :3225
C801 15 20V :TA.C
Q801 FX214
(A-3) Q801 SWITCHING
LN8801
BACK GND 1
LN8802
BACK GND 2
LB-45 BOARD
no mark : REC/PB mode
C853 6.8 20V :TA.B
R859 180k
②
0.9
14.9
16
15
14
GND
Vcc2
OUT
U.V.L.O
SCP
POWER ON/OFF
VREF 2.5V
OSC
Vcc1
1
2
3
4.9
2.5
0.6
(C-3) Q853 DISCHARGE SWITCH
C878 0.1 B
C868 0.22 1608 F
1.2
1.2
Q853 DTA123JUA-T106
C856 10 6.3V :TA.A
C870 0.01 B
R869 68k
R870 56k
09

·SIGNAL PATH

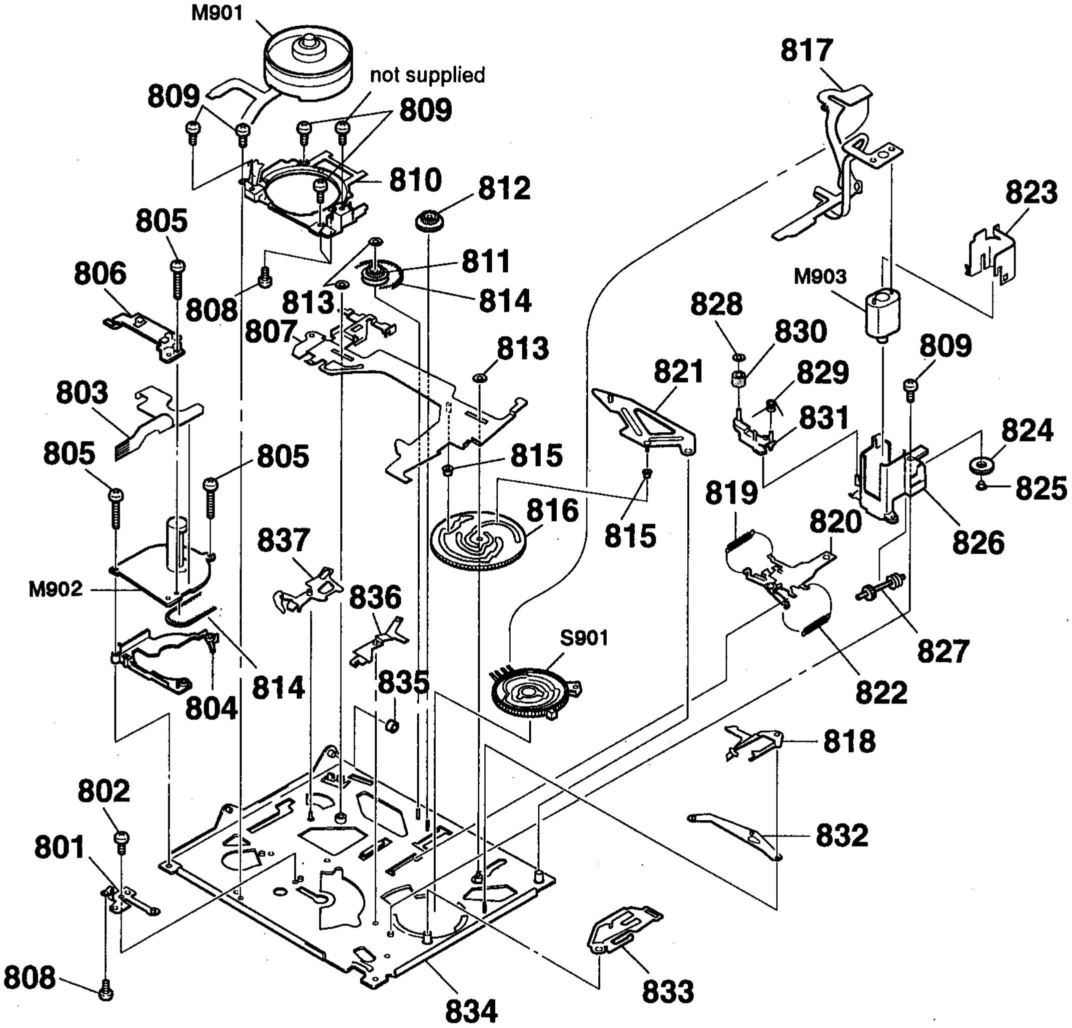
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


8
9
10
11
12
13
14
15
(B-1)
IC852
13.5V/12V REG
IC852 NJM2904V
R856 150k 0.5%
R857 220k 0.5%
R858 47k
R854 180k 0.5%
R855 39k
R853 150k 0.5%
C852 0.01 B
R852 47k
C851 3300p B
L853 220μH :3225
HDO
BKLVL
(A-1)
Q866
LED DRIVE
TALLY
R844 10 1/8W :3216
(A-2) D851 PR1102W-TR
R851 680
Q866 UN9213-(TXE)
L854 10μH
C869 10 4V :TA.A
C871 0.01 B
(B-2)
IC853
BUFFER
IC853 TA75W01FU
R889 100k
C877 0.01 B
IC857 TC74VHC123AFS
(B-2)
IC857
COUNTER
R842 4.7k
R843 470
Q854 2SB1462-Q
Q855 2SB1462-Q
R841 10k
Q852 2SB1216-Q
Q851 2SB1622-ST-TB
R846 2.7k
R892 22 1/8W :3216
(B-3) (B-3) (B-3) (B-3)
Q851, 852, 854, 855
SENSOR SWITCH
(B-1)
IC855
AUTO POWER ON/OFF
IC855 BA10324AFV-E2
R898 47k
R899 100k
C872 3.3μ 6.3V :TA.A
R895 10k
R878 47k
R880 100k
R886 27k
R849 10k
R884 100k
R850 10k
R885 10k
R887 47k
R888 1M
R896 47k
(B-4) (B-3)
Q864, 865
LOGIC
Q864 UN9213-(TXE)
Q865 UN9213-(TXE)
(B-4)
D852 MA6S121-(TX)
C867 1 B :2012
R879 22k
R881 470k
C853 6.8 20V :TA.B
R860 47k
R862 27k
R863 150k
C855 0.01 B
R864 47k
R867 270k
R861 68k
C854 0.022 B
R865 56k
R868 0
IC851 MB3789PFV-G-BND-ER
(C-3)
IC851
DC/AC
CONVERTER
GND
VCC2
CB
DTC
OUT
U.V.L.O
PCM COMP
SCP
OSC
POWER ON/OFF
VREF 2.5V
C859 0.022 B
R872 10k
R875 1.2k
C865 150p CH
R871 270k
R874 150k
R873 330k
C860 0.01 B
C856 10 6.3V :TA.A
C858 3.3 6.3V :TA.A
R869 68k
R870 56k
C857 2200p SL
①
②


15
16
17
18
19
20
21
22
VF-96 BOARD
no mark : REC/PB mode
* : Can not be measured.
CN852 26P (A-4)
1 SENSOR VCC 3.2V
2 SENSOR OUT
3 SENSOR IN K
4 SENSOR IN A
5 HI SI
6 HI XSCK
7 HI SO
8 XCS EVF D/A
9 D 3.2V
10 EVF 12V
11 EVF 13.5V
12 EVF 4.9V
13 EVF GND
14 EVF R
15 EVF G
16 EVF B
17 EVF XVD
18 EVF XHD
19 HDO
20 D 4.9V
21 EVF VG
22 VCO
23 INV CURRENT
24 TALLY
25 LOOK LEVEL
26 LOOK ON
SI
XSCK
SO
XCS
RI
GI
BI
VD
XHD
HDO
VG
VCO
BKLVL
Q991
D991
FP-394 (FLEXIBLE)
CN901 22P (B-3)
22 LOOK ON
21 LOOK LEVEL
20 TALLY
19 INV CURRENT
18 VCO
17 EVF VG
16 D 4.9V
15 HDO
14 EVF XHD
13 EVF XVD
12 EVF B
11 EVF G
10 EVF R
9 EVF GND
8 EVF 4.9V
7 EVF 13.5V
6 EVF 12V
5 D 3.2V
4 XCS EVF D/A
3 HI SO
2 HI XSCK
1 HI SI
ON
LKL
TAL
BKLVL
SCB
SCR
CONT
GAM
HD
XHD
XCS
DI
XSCK
DO
(B-2) IC853 BUFFER
(A-2) IC854 SWITCHING
IC853 TA75W01FU
IC854 TC7S66FU
IC855 BA10324AFV-E2
R898 47k
R899 100k
C872 3.3μ 6.3V :TA A
C873 1 B :2012
C874 1 B :2012
R890 100k
R895 10k
R882 1k
R840 15k
R878 47k
R880 100k
R886 27k
R849 10k
R888 1M
R884 100k
R850 10k
R887 47k
R885 10k
C871 0.01 B
L854 10μH
(B-1) IC902 RGB DECODER
IC902 CXA1515Q
C931 0.1 F
R929 3.9k
R930 27k
R903 22k
C908 0.01 B
C909 4.7 6.3V :TA A
C906 0.01 B
R902 82k
C935 0.01 B
C934 0.01 B
C903 0.1 F
C902 0.1 F
C901 0.1 F
R934 2.2k
C932 0.01 B
R935 2.2k
R936 2.2k
L901 10μH
C904 0.01 B
C933 0.01 B
R901 390k
R904 390k
C905 1 F
C907 1 F
R906 22k
BF
SH B
SH G
SH R
B/BRIGHT
R/BRIGHT
RGB BRIGHT
FRP
R IN
G IN
B IN
BRIGHT
VCC1
GND1
VCC2
GND2
V COM OUT
SIGC
V COM CONT
R OUT
R CLP
CONT
B GAIN
R GAIN
RGB GAIN
B CLP
B OUT
G CLP
G OUT
IC901 MB88146PFV-G-BND-ER
(B-3) IC901 EXP I/O
BRT
SBR
SBB
CONT
SCR
SCB
GAM
VXO
BKLVL
LKL
ADJ
WIDE
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA
INV CURRENT
LOOK LEVEL
GND
VDD A
XCS
SO
SI
XSCK
LOOK ON
TALLY
XNTSC
PIXEL
VCC D
VDD
NTSC
PX
①
②
④
⑧
⑨
⑩

5-1-10. MECHANISM CHASSIS ASSEMBLY


M901
817
not supplied
809
809
810
812
823
805
811
806
808
813
814
807
M903
828
830
809
813
821
829
803
831
824
805
805
815
825
819
816
815
820
826
837
M902
836
S901
827
814
835
804
822
818
802
832
801
808
833
834

Ref. No.	Part No.	Description	Remark
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1.4)	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
M901	A-7048-831-A	DRUM ASSY (DGH-0D1A-R)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

5-2. ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Canadian model is abbreviated as CND.
- Hong Kong model is abbreviated as HK.
- Tourist model is abbreviated as JE.

Ref. No.	Part No.	Description	Remark
*	A-7072-552-A	AV-35 (HC) BOARD, COMPLETE (TR910) ***************************	
*	A-7072-820-A	AV-35 (MCPE) BOARD, COMPLETE (TR710) ***************************** (Ref. No. 3,000 Series)	
		< CAPACITOR >	
C251	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C259	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		< CONNECTOR >	
CN251	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN252	1-573-923-21	CONNECTOR, FFC/FPC (ZIF) 14P	
		< DIODE >	
D251	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D252	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D253	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D254	8-719-045-87	DIODE MA4Z082WA-(TX).SO (TR910)	
D255	8-719-045-87	DIODE MA4Z082WA-(TX).SO (TR910)	
D256	8-719-420-14	DIODE MA8082-M (TR910)	
		< COIL >	
L251	1-414-072-11	INDUCTOR 1uH	
		< TRANSISTOR >	
Q251	8-729-101-07	TRANSISTOR 2SB798-DL	
Q252	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R251	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R252	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R253	1-216-820-11	METAL CHIP 820 5% 1/16W	
R254	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R255	1-216-864-11	METAL CHIP 0 5% 1/16W	
R256	1-216-864-11	METAL CHIP 0 5% 1/16W	
R257	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR910)
R258	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR910)

Ref. No.	Part No.	Description	Remark
R259	1-216-864-11	METAL CHIP 0 5% 1/16W	
R260	1-216-864-11	METAL CHIP 0 5% 1/16W	
R261	1-216-864-11	METAL CHIP 0 5% 1/16W	
R262	1-216-864-11	METAL CHIP 0 5% 1/16W	
R263	1-216-864-11	METAL CHIP 0 5% 1/16W	
R264	1-216-864-11	METAL CHIP 0 5% 1/16W	
*	A-7072-549-A	CD-148 (HC) BOARD, COMPLETE **************************** (Ref. No. 3,000 Series) (IC401 is not included to the mounted board.)	
		< CAPACITOR >	
C401	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C405	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
C406	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
		< CONNECTOR >	
CN401	1-766-627-21	CONNECTOR, FFC/FPC 16P	
		< IC >	
IC401	A-7030-638-A	CCD BLOCK ASSY (CCD IMAGER)(079 SERVICE)	
		< COIL >	
L401	1-412-963-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q401	8-729-232-86	TRANSISTOR 2SK1875-BL/V	
Q402	8-729-117-73	TRANSISTOR 2SC4178-F14	
		< RESISTOR >	
R403	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R404	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R407	1-216-295-91	CONDUCTOR, CHIP (2012)	

Be sure to read "Note on the CCD Imager replacement" on page 4-8 when changing the CCD imager.

Ref.No.	Part No.	Description	Remark
*	A-7092-763-A	DD-86 (HCU) BOARD, COMPLETE	(TR910)
		***************************	
*	A-7092-843-A	DD-86 (MC) BOARD, COMPLETE	(TR710)
		**************************	
			(Ref. No. 20,000 Series)
		< CAPACITOR >	
C1501	1-135-159-21	TANTALUM CHIP 10uF 10% 20V	
C1502	1-135-159-21	TANTALUM CHIP 10uF 10% 20V	
C1503	1-135-165-11	TANTAL. CHIP 33uF 20% 16V	
C1504	1-135-159-21	TANTALUM CHIP 10uF 10% 20V	(TR910)
C1506	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1507	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C1508	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	
C1509	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1510	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1511	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1512	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1513	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1514	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1515	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1519	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1520	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1522	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C1523	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1524	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1525	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1526	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1529	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1530	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1531	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1532	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1533	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1534	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1535	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C1536	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C1537	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C1538	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C1539	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C1540	1-135-214-21	TANTAL. CHIP 4.7uF 20% 20V	
C1541	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
C1542	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1543	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C1544	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C1545	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C1546	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C1547	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C1548	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1549	1-164-361-11	CERAMIC CHIP 0.047uF 16V	
C1550	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	(TR910)

Ref.No.	Part No.	Description	Remark
C1551	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		< CONNECTOR >	
CN1501	1-569-775-21	PIN, CONNECTOR 5P	
CN1503	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	
		< DIODE >	
D1501	8-719-027-77	DIODE MA796-TX	
D1502	8-719-404-49	DIODE MA111	
D1503	8-719-420-14	DIODE MA8082-M	
		< IC >	
IC1501	8-759-350-29	IC SN104213PM-T6	
		< COIL >	
L1501	1-424-653-11	COIL, CHOKE 10uH	
L1502	1-424-653-11	COIL, CHOKE 10uH	
L1503	1-424-653-11	COIL, CHOKE 10uH	
L1504	1-424-674-11	COIL, CHOKE 22uH	
L1505	1-424-675-11	COIL, CHOKE 33uH	
L1506	1-424-674-11	COIL, CHOKE 22uH	
L1507	1-424-674-11	COIL, CHOKE 22uH	
L1508	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1509	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1510	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1511	1-412-066-21	INDUCTOR CHIP 220uH	
L1512	1-424-674-11	COIL, CHOKE 22uH	
L1513	1-412-060-11	INDUCTOR CHIP 22uH	
L1514	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1515	1-412-060-11	INDUCTOR CHIP 22uH	
L1516	1-412-056-11	INDUCTOR CHIP 4.7uH	
		< IC LINK >	
⚠PS1501	1-533-709-11	FUSE (SMD)(1.25A)	
⚠PS1502	1-533-709-11	FUSE (SMD)(1.25A)	
⚠PS1503	1-533-709-11	FUSE (SMD)(1.25A)	
⚠PS1504	1-533-709-11	FUSE (SMD)(1.25A)	(TR910)
		< TRANSISTOR >	
Q1501	8-729-033-14	TRANSISTOR FP107-TL	
Q1502	8-729-033-14	TRANSISTOR FP107-TL	
Q1503	8-729-033-14	TRANSISTOR FP107-TL	
Q1504	8-729-033-14	TRANSISTOR FP107-TL	
Q1505	8-729-030-75	TRANSISTOR 2SK2316-TD	
Q1506	8-729-804-41	TRANSISTOR 2SB1122-S	
Q1507	8-729-037-53	TRANSISTOR 2SB1462J-QR(TX).SO	
Q1508	8-729-037-53	TRANSISTOR 2SB1462J-QR(TX).SO	
Q1509	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).SO	
Q1510	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).SO	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
Q1511	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	
Q1512	8-729-033-14	TRANSISTOR FP107-TL	
Q1513	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).SO	
Q1514	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	
Q1515	8-729-015-60	TRANSISTOR 2SJ316-TD	
Q1516	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q1517	8-729-015-60	TRANSISTOR 2SJ316-TD	
Q1518	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	(TR910)
Q1519	8-729-030-75	TRANSISTOR 2SK2316-TD	(TR910)
Q1520	8-729-037-61	TRANSISTOR UN9113J-(TX)	
Q1521	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	(TR910)
		< RESISTOR >	
R1501	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1503	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1504	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1505	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1506	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1507	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R1508	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1509	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1512	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1513	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1514	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1515	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1516	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1517	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1519	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1520	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1521	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1522	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1523	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1524	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1525	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1526	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1527	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R1528	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R1529	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1530	1-218-877-11	METAL CHIP 18K 0.50% 1/16W	
R1531	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1532	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1533	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1534	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R1535	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1536	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR910)
R1537	1-216-851-11	METAL CHIP 330K 5% 1/16W	(TR910)
R1538	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR910)
R1543	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR910)
R1544	1-216-857-11	METAL CHIP 1M 5% 1/16W	

Ref. No.	Part No.	Description	Remark
		< TRANSFORMER >	
T1501	1-426-938-11	TRANSFORMER, DC/DC CONVERTER	

Ref. No.	Part No.	Description	Remark
*	A-7072-556-A	FK-66 (HCU) BOARD, COMPLETE ***************************	
			(Ref. No. 3,000 Series)
		< CONNECTOR >	
CN151	1-573-917-11	CONNECTOR, FFC/FPC (ZIF) 8P	
		< DIODE >	
D151	8-719-057-99	DIODE SML-211YT-T86 (STOP)	
D152	8-719-057-99	DIODE SML-211YT-T86 (REW)	
D153	8-719-057-99	DIODE SML-211YT-T86 (PLAY)	
D154	8-719-057-99	DIODE SML-211YT-T86 (FF)	
D155	8-719-057-99	DIODE SML-211YT-T86 (PAUSE)	
D156	8-719-057-99	DIODE SML-211YT-T86 (REC)	
D157	8-719-057-99	DIODE SML-211YT-T86 (REC)	
		< RESISTOR >	
R151	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R152	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R153	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R154	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R155	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R156	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R157	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R159	1-216-812-11	METAL CHIP 180 5% 1/16W	
R160	1-216-812-11	METAL CHIP 180 5% 1/16W	
R161	1-216-817-11	METAL CHIP 470 5% 1/16W	
R162	1-216-812-11	METAL CHIP 180 5% 1/16W	
R163	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R164	1-216-833-11	METAL CHIP 10K 5% 1/16W	
		< VARIABLE RESISTOR >	
RV151	1-225-224-11	RES, VAR (ZOOM) 10K	
		< SWITCH >	
S151	1-692-112-11	SWITCH, TACTIL (■ STOP)	
S152	1-692-112-11	SWITCH, TACTIL (◀◀ FF)	
S153	1-692-112-11	SWITCH, TACTIL (▷ PLAY)	
S154	1-692-112-11	SWITCH, TACTIL (▶▶ REW)	
S155	1-692-112-11	SWITCH, TACTIL (▮▮ PAUSE)	
S156	1-692-112-11	SWITCH, TACTIL (● REC)	
S157	1-692-112-11	SWITCH, TACTIL (□ REC)	
S158	1-692-112-11	SWITCH, TACTIL (EDIT SEARCH +)	
S159	1-692-112-11	SWITCH, TACTIL (EDIT SEARCH -)	

Ref. No.	Part No.	Description	Remark
		FP-249 BOARD, COMPLETE (Not supplied)	
		**********************	
		(Ref. No. 8,000 Series)	
	1-658-214-11	FP-356 FLEXIBLE BOARD	
	3-965-551-01	HOLDER (S), SENSOR	
	3-965-552-01	HOLDER (T), SENSOR	
		< HALL ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (Hi8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C. LOCK)	

Ref. No.	Part No.	Description	Remark
	1-658-213-11	FP-355 FLEXIBLE BOARD	
		*********************	
		(Ref. No. 8,000 Series)	
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	

Ref. No.	Part No.	Description	Remark
*	A-7092-764-A	HI-39 (HCU) BOARD, COMPLETE (TR910)	
		***************************	
*	A-7092-977-A	HI-39 (MCPE) BOARD, COMPLETE (TR710)	
		****************************	
		(Ref. No. 20,000 Series)	
		< BUZZER >	
BZ501	1-529-104-11	BUZZER, PIEZOELECTRIC	
		< CAPACITOR >	
C501	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1951	1-135-091-00	TANTAL. CHIP 1uF 20% 16V	
C1952	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1955	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1956	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1957	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1958	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1961	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1965	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1968	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1970	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1973	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1974	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1976	1-162-917-11	CERAMIC CHIP 15PF 5% 50V	
C1977	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1978	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1980	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1981	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1982	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C1984	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1986	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1987	1-104-851-11	TANTAL. CHIP 10uF 20% 10V	
C1988	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1989	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1990	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2101	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	(TR910)
C2102	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C2103	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C2105	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	(TR910)
C2106	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C2107	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	(TR910)
C2108	1-162-915-11	CERAMIC CHIP 10PF 5% 50V	(TR910)
C2109	1-162-925-11	CERAMIC CHIP 68PF 5% 50V	(TR910)
C2110	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C2111	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	(TR910)
C2112	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TR910)
C2113	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	(TR910)
C2114	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C2115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C2116	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR910)
C2117	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR910)
C2118	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TR910)
		< CONNECTOR >	
CN501	1-774-602-41	CONNECTOR, BOARD TO BOARD 60P	
CN502	1-766-354-21	CONNECTOR, FFC/FPC 24P	
CN503	1-766-627-21	CONNECTOR, FFC/FPC 16P	
* CN504	1-770-619-11	PIN, CONNECTOR 2P	
		< DIODE >	
D501	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D502	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D503	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D504	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D511	8-719-404-49	DIODE MA111	
⚠D512	8-719-420-51	DIODE MA729	
D514	8-719-404-49	DIODE MA111	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
D515	8-719-404-49	DIODE MA111	
D516	8-719-404-49	DIODE MA111	
D1951	8-719-404-49	DIODE MA111	
D1952	8-719-404-49	DIODE MA111	
D1953	8-719-404-49	DIODE MA111	
D1954	8-719-420-51	DIODE MA729	
D1955	8-719-420-51	DIODE MA729	
D1956	8-719-421-27	DIODE MA728	
D1957	8-719-404-49	DIODE MA111	

< FERRITE BEAD >

Ref.No.	Part No.	Description	Remark
FB501	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB502	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB503	1-414-228-11	INDUCTOR, FERRITE BEAD	

< IC >

Ref.No.	Part No.	Description	Remark
IC128	8-759-421-52	IC MB87B110CPFV-G-BND-ER (TR910)	
IC1951	8-759-298-10	IC S-8423NFS-T2	
IC1952	8-759-399-21	IC S579107PZ-TEB (TR710)	
IC1952	8-759-426-65	IC S579110PZ-TEB (TR910)	
IC1954	8-759-355-95	IC S-29L253AFS-TB	
IC1955	8-759-059-05	IC TL1596CPW	

< COIL >

Ref.No.	Part No.	Description	Remark
L1951	1-414-078-11	INDUCTOR 10uH	
L2101	1-414-078-11	INDUCTOR 10uH (TR910)	
L2102	1-412-950-11	INDUCTOR 8.2uH (TR910)	
L2103	1-414-078-11	INDUCTOR 10uH (TR910)	
L2104	1-414-078-11	INDUCTOR 10uH (TR910)	
L2105	1-410-658-31	INDUCTOR CHIP 220uH (TR910)	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q501	8-729-037-53	TRANSISTOR 2SB1462J-QR(TX).SO	
Q502	8-729-428-88	TRANSISTOR UN9113 (TR910)	
Q503	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q504	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	
Q505	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q506	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	
Q509	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	
Q1951	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).SO	
Q1952	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q1953	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).SO	
Q1954	8-729-032-00	TRANSISTOR 2SJ381-TD	
Q1955	8-729-429-14	TRANSISTOR UN9211	
Q1959	8-729-032-62	TRANSISTOR 2SJ347-TE85L	
Q1963	8-729-024-48	TRANSISTOR 2SK1830-TE85L	
Q2101	8-729-425-64	TRANSISTOR 2SD2216-Q (TR910)	
Q2102	8-729-425-64	TRANSISTOR 2SD2216-Q (TR910)	
Q2103	8-729-425-64	TRANSISTOR 2SD2216-Q (TR910)	
Q2104	8-729-428-84	TRANSISTOR UN9111 (TR910)	
Q2105	8-729-425-64	TRANSISTOR 2SD2216-Q (TR910)	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R510	1-216-864-11	METAL CHIP 0 5% 1/16W	
R511	1-216-864-11	METAL CHIP 0 5% 1/16W	
R512	1-216-864-11	METAL CHIP 0 5% 1/16W	
R513	1-216-864-11	METAL CHIP 0 5% 1/16W	
R514	1-216-864-11	METAL CHIP 0 5% 1/16W	
R515	1-216-864-11	METAL CHIP 0 5% 1/16W	
R516	1-216-864-11	METAL CHIP 0 5% 1/16W	
R518	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR910)
R519	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R521	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R522	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TR910)
R523	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R524	1-216-819-11	METAL CHIP 680 5% 1/16W	
R525	1-216-819-11	METAL CHIP 680 5% 1/16W	
R526	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R527	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R528	1-216-843-11	METAL CHIP 68K 5% 1/16W	(TR710)
R528	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR910)
R529	1-216-842-11	METAL CHIP 56K 5% 1/16W	(TR710)
R530	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R531	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R533	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR710)
R535	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR710)
R536	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR710)
R537	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR710)
R538	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR710)
R539	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R540	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R541	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R542	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R543	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R545	1-216-864-11	CONDUCTOR CHIP (1608)	
R1953	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1954	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1955	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1956	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1957	1-216-813-11	METAL CHIP 220 5% 1/16W	
R1958	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1959	1-216-295-91	CONDUCTOR, CHIP (2012)	
R1960	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1962	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1963	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1964	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1965	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1966	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1967	1-216-853-11	METAL CHIP 470K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R1969	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1970	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1972	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1973	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1974	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1975	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1976	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1977	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1978	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1979	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1980	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1981	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1982	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1983	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1984	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1985	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1986	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1987	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1988	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1991	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1992	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1993	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1994	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1995	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1996	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1997	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1998	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1999	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2000	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2001	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2003	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2004	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2005	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2006	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2007	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2008	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2011	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2012	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2013	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2015	1-219-570-11	METAL GLAZE 10M 5% 1/16W	
R2017	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2018	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2019	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2020	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2021	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R2022	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2023	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2024	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2025	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2026	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2027	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2028	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2029	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2030	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2031	1-216-817-11	METAL CHIP 470 5% 1/16W	
R2032	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2036	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2037	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2038	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2039	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2040	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2041	1-216-864-11	METAL CHIP 0 5% 1/16W	
R2044	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2046	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2047	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R2048	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R2049	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R2101	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR910)
R2102	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR910)
R2103	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR910)
R2104	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2105	1-216-812-11	METAL CHIP 180 5% 1/16W	(TR910)
R2108	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	(TR910)
R2109	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2110	1-216-816-11	METAL CHIP 390 5% 1/16W	(TR910)
R2111	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2112	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	(TR910)
R2113	1-216-820-11	METAL CHIP 820 5% 1/16W	(TR910)
R2116	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR910)
R2117	1-216-816-11	METAL CHIP 390 5% 1/16W	(TR910)
R2119	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	(TR910)
R2120	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR910)
R2121	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR910)
R2122	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR910)
R2124	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR910)
R2127	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR910)
R2128	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2130	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2131	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2132	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2133	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2134	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R2151	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2152	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R2155	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2162	1-216-845-11	METAL CHIP 100K 5% 1/16W	

< VIBRATOR >

X1951	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X1952	1-579-907-21	VIBRATOR, CERAMIC (20MHz)	

Ref. No.	Part No.	Description	Remark
*	A-7072-539-A	LB-45 (VH4C) BOARD, COMPLETE	
		****************************	
		(Ref. No. 5,000 Series)	
		< CAPACITOR >	
C801	1-104-917-11	TANTAL. CHIP 15uF 20% 20V	
C802	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C803	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C804	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C805	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C806	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
		< CONNECTOR >	
* CN801	1-573-333-21	CONNECTOR, BOARD TO BOARD 10P	
		< COIL >	
L801	1-412-030-11	INDUCTOR CHIP 22uH	
L802	1-412-029-11	INDUCTOR CHIP 10uH	
		< FLUORECENT INDICATOR >	
⚠ND801	1-517-414-21	FLUORESCENT TUBE (0.55 INCH)	
		< TRANSISTOR >	
Q801	8-729-035-61	TRANSISTOR FX214-S-TL1	
		< RESISTOR >	
R802	1-216-839-11	METAL CHIP 33K 5% 1/16W	
		< TRANSFORMER >	
⚠T801	1-426-848-51	TRANSFORMER, INVERTER	
*	A-7072-548-A	LC-52 (HC) BOARD, COMPLETE	
		**************************	
		(Ref. No. 4,000 Series)	
		< CAPACITOR >	
C181	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
		< CONNECTOR >	
CN181	1-573-350-11	CONNECTOR, FFC/FPC 10P	
CN182	1-766-350-21	CONNECTOR, FFC/FPC 20P	
		< IC >	
IC181	8-759-073-95	IC SED1510FOC-T4	
		< RESISTOR >	
R181	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R202	1-216-812-11	METAL CHIP 180 5% 1/16W	
R203	1-216-812-11	METAL CHIP 180 5% 1/16W	
*	A-7072-546-A	LI-56 (HC) BOARD, COMPLETE	
		**************************	
		(Ref. No. 3,000 Series)	
		< BATTERY >	
BH101	1-550-104-32	HOLDER, BATTERY	
		< CONNECTOR >	
* CN101	1-770-619-11	PIN, CONNECTOR 2P	
		< DIODE >	
D102	8-719-422-46	DIODE MA8056	
*	A-7072-547-A	MA-268 (HC) BOARD, COMPLETE	
		***************************	
		(Ref. No. 4,000 Series)	
		< CAPACITOR >	
C302	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C303	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C314	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C315	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C323	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C326	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C329	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C330	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C335	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C336	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C337	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C338	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C339	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C340	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C341	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C342	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C343	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C345	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C346	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C347	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C348	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C349	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C351	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
C354	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C355	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C356	1-164-245-11	CERAMIC CHIP 0.015uF 10%	25V
C357	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C359	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V
C360	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V
C361	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C363	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V
C364	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V
C365	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C366	1-164-245-11	CERAMIC CHIP 0.015uF 10%	25V
C367	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C368	1-162-962-11	CERAMIC CHIP 470PF 10%	50V
C369	1-162-962-11	CERAMIC CHIP 470PF 10%	50V
C370	1-164-346-11	CERAMIC CHIP 1uF	16V
C371	1-164-346-11	CERAMIC CHIP 1uF	16V
C372	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C376	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C377	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C378	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN301	1-580-055-21	PIN, CONNECTOR 2P	
CN302	1-580-055-21	PIN, CONNECTOR 2P	
CN303	1-764-522-11	CONNECTOR, FFC/FPC (ZIF) 13P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D303	8-719-059-73	DIODE CL-150HR-CD-T	
D304	8-719-404-49	DIODE MA111	
D305	8-719-045-87	DIODE MA4Z082WA-(TX).SO	

< IC >

Ref. No.	Part No.	Description	Remark
IC301	8-759-248-31	IC BA7780KV-E2	
IC303	8-749-012-17	IC RS-140-T	

< JACK >

Ref. No.	Part No.	Description	Remark
J301	1-691-737-11	JACK (SMALL TYPE)(MIC, PLUG IN POWER)	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R301	1-216-864-11	METAL CHIP 0 5% 1/16W	
R302	1-216-864-11	METAL CHIP 0 5% 1/16W	
R303	1-216-864-11	METAL CHIP 0 5% 1/16W	
R304	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R314	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R318	1-216-864-11	METAL CHIP 0 5% 1/16W	
R319	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R323	1-216-864-11	METAL CHIP 0 5% 1/16W	
R328	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R330	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R331	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R332	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R333	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R334	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R335	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R338	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R340	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R342	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R343	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R344	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R345	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R346	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R349	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R350	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R351	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R354	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R355	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R357	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R358	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R362	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R363	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R364	1-216-818-11	METAL CHIP 560 5% 1/16W	
R365	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R370	1-216-805-11	METAL CHIP 47 5% 1/16W	
R371	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R373	1-216-864-11	METAL CHIP 0 5% 1/16W	

* A-7072-551-A SE-51 (HC) BOARD, COMPLETE
****
(Ref. No. 3,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C451	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C452	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C453	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C454	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C455	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C456	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C457	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C458	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C459	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C460	1-128-257-21	ELECT CHIP 33uF 20% 10V	
C461	1-128-257-21	ELECT CHIP 33uF 20% 10V	
C462	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	

Ref. No.	Part No.	Description			Remark
C467	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C468	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C469	1-115-156-11	CERAMIC CHIP	1uF		10V
		< CONNECTOR >			
CN451	1-766-342-21	CONNECTOR, FFC/FPC 12P			
		< IC >			
IC451	8-759-080-34	IC	TA75W01FU-TE12R		
IC452	8-759-058-45	IC	NJM3403AV(TE2)		
IC453	8-759-234-77	IC	TC4S66F		
IC454	8-759-234-77	IC	TC4S66F		
IC455	8-759-248-78	IC	MB88102PFV-G-BND-ER		
		< COIL >			
L451	1-414-078-11	INDUCTOR 10uH			
L452	1-414-078-11	INDUCTOR 10uH			
		< RESISTOR >			
R451	1-216-837-11	METAL CHIP	22K	5%	1/16W
R452	1-216-837-11	METAL CHIP	22K	5%	1/16W
R453	1-216-837-11	METAL CHIP	22K	5%	1/16W
R454	1-216-837-11	METAL CHIP	22K	5%	1/16W
R455	1-216-837-11	METAL CHIP	22K	5%	1/16W
R456	1-216-837-11	METAL CHIP	22K	5%	1/16W
R457	1-216-803-11	METAL CHIP	33	5%	1/16W
R458	1-216-833-11	METAL CHIP	10K	5%	1/16W
R459	1-216-833-11	METAL CHIP	10K	5%	1/16W
R460	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R461	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R462	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R463	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R464	1-216-833-11	METAL CHIP	10K	5%	1/16W
R465	1-216-850-11	METAL CHIP	270K	5%	1/16W
R466	1-216-850-11	METAL CHIP	270K	5%	1/16W
R467	1-216-833-11	METAL CHIP	10K	5%	1/16W
R468	1-216-835-11	METAL CHIP	15K	5%	1/16W
R470	1-216-864-11	METAL CHIP	0	5%	1/16W
R472	1-216-864-11	METAL CHIP	0	5%	1/16W
		< SENSOR >			
SE451	1-810-725-71	SENSOR, ANGULAR VELOCITY (YAW)			
SE452	1-810-725-81	SENSOR, ANGULAR VELOCITY (PITCH)			

Ref. No.	Part No.	Description			Remark
*	A-7092-762-A	VC-177 (HCU) BOARD, COMPLETE (TR910) *****************************			
*	A-7092-842-A	VC-177 (MC) BOARD, COMPLETE (TR710) **************************** (Ref. No. 10,000 Series)			
		< CAPACITOR >			
C251	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C252	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C253	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C254	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C255	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C256	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C258	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C259	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C260	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C261	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C262	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C263	1-115-156-11	CERAMIC CHIP	1uF		10V
C266	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C267	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C268	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C269	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C271	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C274	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C276	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C574	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C576	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C577	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C578	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C579	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C609	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C610	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1002	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1003	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C1004	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C1005	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1006	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1007	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1008	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1009	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1010	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1011	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1012	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1013	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1014	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1018	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1019	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1020	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1021	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V

Ref.No.	Part No.	Description				Remark
C1022	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1023	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1024	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1025	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C1026	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1027	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1029	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1030	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1034	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C1035	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1036	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C1038	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1039	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1040	1-162-958-11	CERAMIC CHIP	270PF	5%	50V	
C1042	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C1044	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C1045	1-162-958-11	CERAMIC CHIP	270PF	5%	50V	
C1046	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	(TR910)
C1047	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	(TR910)
C1048	1-162-922-11	CERAMIC CHIP	39PF	5%	50V	(TR910)
C1049	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	(TR910)
C1050	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	(TR910)
C1051	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1052	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1053	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1054	1-162-925-11	CERAMIC CHIP	68PF	5%	50V	
C1055	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1056	1-162-926-11	CERAMIC CHIP	82PF	5%	50V	
C1057	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C1058	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1061	1-162-959-11	CERAMIC CHIP	330PF	5%	50V	
C1062	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1063	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C1064	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	
C1066	1-162-920-11	CERAMIC CHIP	27PF	5%	50V	
C1067	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C1068	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V	
C1069	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1070	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1071	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	
C1072	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	
C1075	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1076	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C1151	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1152	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1153	1-164-217-11	CERAMIC CHIP	150PF	5%	50V	
C1154	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1156	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1157	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1160	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1161	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1163	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1164	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1165	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1166	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1167	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1168	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1173	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1201	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C1203	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C1204	1-164-392-11	CERAMIC CHIP	390PF	5%	50V	
C1205	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1206	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1209	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1210	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1212	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1213	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1215	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1216	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1217	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1218	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1219	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1220	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1222	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1223	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1224	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1227	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1228	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1229	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1230	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1231	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C1232	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C1233	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1234	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1236	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1237	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1280	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	
C1282	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1283	1-162-922-11	CERAMIC CHIP	39PF	5%	50V	
C1284	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1285	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1302	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C1306	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1307	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1308	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	

Ref. No.	Part No.	Description				Remark
C1309	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	(TR910)
C1310	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C1311	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1312	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR910)
C1313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1314	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1317	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1318	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1319	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1320	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1321	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1322	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V	
C1323	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C1324	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1326	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	
C1327	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1328	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C1330	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR910)
C1331	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TR910)
C1332	1-126-246-11	ELECT CHIP	220uF	20%	4V	(TR910)
C1333	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C1334	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1335	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1337	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1339	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1342	1-164-217-11	CERAMIC CHIP	150PF	5%	50V	
C1343	1-162-922-11	CERAMIC CHIP	39PF	5%	50V	
C1344	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1345	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1346	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C1347	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C1361	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C1363	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1366	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1402	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1403	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	
C1404	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1405	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1406	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1407	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1408	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1409	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C1410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1412	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1414	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	

Ref. No.	Part No.	Description				Remark
C1415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1416	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C1417	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1421	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1422	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1423	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1424	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1425	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1426	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	
C1427	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1429	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1430	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1431	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V	
C1432	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	
C1433	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1434	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1435	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V	
C1436	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V	
C1437	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C1439	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C1441	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1444	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1471	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C1472	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C1473	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1474	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1475	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C1601	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C1602	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1604	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V	
C1605	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1608	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1612	1-162-923-11	CERAMIC CHIP	47PF	5%	50V	
C1613	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1615	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1616	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C1617	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	
C1618	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V	
C1619	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	
C1620	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1621	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1622	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1623	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1624	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1625	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1626	1-164-346-11	CERAMIC CHIP	1uF		16V	
C1628	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1629	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1630	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C1631	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	

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Ref. No.	Part No.	Description	Remark
C1632	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1635	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1654	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1655	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1656	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1657	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C1658	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1659	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1665	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1702	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1703	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR910)
C1751	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1752	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1753	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1754	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1755	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1756	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1757	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C1758	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C1760	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1761	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1762	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1763	1-162-911-11	CERAMIC CHIP 6PF 0.5PF 50V	
C1764	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1765	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1767	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1768	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1769	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1770	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1771	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C1772	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C1773	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1774	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1775	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1776	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1777	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1779	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1780	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1781	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1782	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	
C1851	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1852	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1853	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1854	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1855	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1856	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1857	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1858	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1859	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1860	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description	Remark
C1861	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1862	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1863	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1864	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C1865	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1866	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1867	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1868	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1869	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1870	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1871	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1872	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1873	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1874	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1875	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1876	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1877	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1878	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1879	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1880	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1882	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1884	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1886	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1887	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C1888	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2051	1-135-151-21	TANTALUM CHIP 4.7uF 20% 4V	
C2052	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2054	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2055	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2056	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2057	1-164-156-11	CERAMIC CHIP 0.1uF 25V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P	
CN102	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN103	1-766-342-21	CONNECTOR, FFC/FPC 12P	
CN104	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN105	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN106	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	
CN107	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN108	1-766-353-21	CONNECTOR, FFC/FPC 23P	
CN109	1-691-352-21	CONNECTOR, FFC/FPC (ZIF) 14P	
CN110	1-774-596-41	CONNECTOR, BOARD TO BOARD 60P	
CN111	1-766-350-21	CONNECTOR, FFC/FPC 20P	
CN112	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P	
CN113	1-573-363-21	CONNECTOR, FFC/FPC 23P	
CN202	1-766-343-21	CONNECTOR, FFC/FPC 13P	
CN205	1-766-340-21	CONNECTOR, FFC/FPC 10P	(TR910)

Ref.No.	Part No.	Description	Remark
		< DIODE >	
D384	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D385	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D394	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D1201	8-719-055-86	DIODE KV1470TL1-3	
D1202	8-719-055-86	DIODE KV1470TL1-3	
D1305	8-719-404-49	DIODE MA111	
D1306	8-719-404-49	DIODE MA111	
D1601	8-719-404-49	DIODE MA111	
D1602	8-713-102-28	DIODE 1T379-04-T8A	
D1758	8-719-420-51	DIODE MA729	
		< FERRITE BEAD >	
FB1151	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1601	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB1602	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB1603	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1604	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1605	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1701	1-414-228-11	INDUCTOR, FERRITE BEAD	
		< IC >	
IC101	8-752-075-31	IC CXA2012R-T4	
IC102	8-759-357-62	IC MB87B108DPFV-G-BND-ER	
IC103	8-752-356-45	IC CXD2301Q-T4	
IC104	8-759-357-65	IC uPD6466GS-604-GLG-E2	
IC105	8-759-357-64	IC CF45819BPZ-TEB	
IC106	8-759-387-35	IC HG51CS276TETL	
IC108	8-759-290-12	IC M62370GP-650D	
IC109	8-759-368-08	IC AN2980FH-EB	
IC114	8-752-380-17	IC CXD2177R-T6	
IC115	8-752-379-65	IC CXD2178R-T6 (TR910)	
IC116	8-759-365-53	IC S-29L353AFS-TB	
IC117	8-752-873-81	IC CXP912032-013R-T6	
IC118	8-759-058-62	IC TC7S08FU(TE85R)	
IC119	8-759-058-62	IC TC7S08FU(TE85R)	
IC120	8-759-356-30	IC XR1083ACQ-E2	
IC121	8-759-327-67	IC LB1950V-TLM	
IC122	8-759-327-61	IC LB8112V-TLM	
IC129	8-759-357-63	IC AN2220FH-EB	
IC130	8-759-058-58	IC TC7S04FU(TE85R)	
IC151	8-752-376-32	IC CXD2310AR-T4	
IC152	8-752-377-12	IC CXD2175R-T6	
IC202	8-752-377-92	IC CXD2485R-T4	
IC203	8-752-073-11	IC CXA2006Q-T4	
IC251	8-759-337-40	IC NJM2904V(TE2)	
IC252	8-759-351-46	IC MPC17A34RVMEL	
IC253	8-759-337-41	IC NJM2902V(TE2)	
IC255	8-752-377-38	IC CXD2430N-T4	
IC800	8-752-378-02	IC CXD2049R-T4	

Ref.No.	Part No.	Description	Remark
		< COIL >	
L251	1-414-078-11	INDUCTOR 10uH	
L252	1-414-078-11	INDUCTOR 10uH	
L253	1-412-058-11	INDUCTOR CHIP 10uH	
L1001	1-412-952-11	INDUCTOR 12uH	
L1002	1-412-066-21	INDUCTOR CHIP 220uH	
L1003	1-412-066-21	INDUCTOR CHIP 220uH	
L1004	1-412-066-21	INDUCTOR CHIP 220uH	
L1005	1-414-080-11	INDUCTOR 22uH	
L1006	1-412-957-11	INDUCTOR 33uH	
L1007	1-412-280-31	INDUCTOR 330uH	
L1008	1-412-282-41	INDUCTOR 470uH	
L1009	1-410-657-21	INDUCTOR CHIP 180uH	
L1010	1-412-956-21	INDUCTOR 27uH (TR910)	
L1011	1-412-949-21	INDUCTOR 6.8uH (TR910)	
L1012	1-412-951-11	INDUCTOR 10uH (TR910)	
L1013	1-414-078-11	INDUCTOR 10uH	
L1014	1-410-656-11	INDUCTOR CHIP 150uH	
L1015	1-412-963-11	INDUCTOR 100uH	
L1018	1-410-656-11	INDUCTOR CHIP 150uH	
L1019	1-412-280-31	INDUCTOR 330uH	
L1021	1-412-944-11	INDUCTOR 2.7uH	
L1022	1-412-279-31	INDUCTOR 270uH	
L1151	1-414-078-11	INDUCTOR 10uH	
L1154	1-414-078-11	INDUCTOR 10uH	
L1201	1-414-078-11	INDUCTOR 10uH	
L1202	1-414-078-11	INDUCTOR 10uH	
L1203	1-414-078-11	INDUCTOR 10uH	
L1204	1-412-945-11	INDUCTOR 3.3uH	
L1206	1-414-078-11	INDUCTOR 10uH	
L1207	1-414-078-11	INDUCTOR 10uH	
L1209	1-414-078-11	INDUCTOR 10uH	
L1220	1-412-955-11	INDUCTOR 22uH	
L1301	1-414-078-11	INDUCTOR 10uH	
L1303	1-412-939-11	INDUCTOR 1uH	
L1305	1-414-078-11	INDUCTOR 10uH	
L1306	1-414-078-11	INDUCTOR 10uH	
L1307	1-414-078-11	INDUCTOR 10uH	
L1308	1-412-959-11	INDUCTOR 47uH	
L1309	1-412-955-11	INDUCTOR 22uH	
L1402	1-414-078-11	INDUCTOR 10uH	
L1403	1-414-233-21	INDUCTOR, FERRITE BEAD	
L1603	1-412-058-11	INDUCTOR CHIP 10uH	
L1652	1-414-078-11	INDUCTOR 10uH	
L1654	1-414-078-11	INDUCTOR 10uH	
L1751	1-414-078-11	INDUCTOR 10uH	
L1752	1-414-078-11	INDUCTOR 10uH	
L1753	1-414-078-11	INDUCTOR 10uH	
L1754	1-412-961-11	INDUCTOR 68uH	
L2051	1-414-078-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q251	8-729-425-64	TRANSISTOR 2SD2216Q	
Q252	8-729-425-64	TRANSISTOR 2SD2216Q	
Q253	8-729-425-50	TRANSISTOR 2SB1462Q	
Q254	8-729-429-18	TRANSISTOR UN9213	
Q572	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q578	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	
Q579	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q580	8-729-429-18	TRANSISTOR UN9213	
Q585	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	
Q586	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q587	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q588	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q589	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q590	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q591	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q592	8-729-015-66	TRANSISTOR 2SC4919-TL (TR910)	
Q593	8-729-015-66	TRANSISTOR 2SC4919-TL (TR910)	
Q1001	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q1002	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1003	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1004	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1005	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1006	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1009	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1010	8-729-429-18	TRANSISTOR UN9213	
Q1013	8-729-429-18	TRANSISTOR UN9213	
Q1014	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1015	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1016	8-729-037-89	TRANSISTOR 2SC4627J-C(TX).SO (TR910)	
Q1017	8-729-031-69	TRANSISTOR 2SA1965-TL (TR910)	
Q1018	8-729-425-50	TRANSISTOR 2SB1462Q (TR910)	
Q1019	8-729-037-89	TRANSISTOR 2SC4627J-C(TX).SO (TR910)	
Q1021	8-729-429-18	TRANSISTOR UN9213 (TR910)	
Q1022	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1023	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q1024	8-729-429-18	TRANSISTOR UN9213	
Q1027	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1030	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1031	8-729-037-89	TRANSISTOR 2SC4627J-C(TX).SO	
Q1033	8-729-429-18	TRANSISTOR UN9213	
Q1034	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1035	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q1036	8-729-429-18	TRANSISTOR UN9213	
Q1037	8-729-429-18	TRANSISTOR UN9213 (TR910)	
Q1151	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1201	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1202	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1203	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1220	8-729-429-18	TRANSISTOR UN9213	
Q1221	8-729-429-18	TRANSISTOR UN9213	
Q1222	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q1305	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1306	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1361	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1362	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1363	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1364	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1403	8-729-429-18	TRANSISTOR UN9213	
Q1404	8-729-429-18	TRANSISTOR UN9213	
Q1405	8-729-429-18	TRANSISTOR UN9213	
Q1601	8-729-429-18	TRANSISTOR UN9213	
Q1602	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q1603	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q1604	8-729-429-18	TRANSISTOR UN9213	
Q1751	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1851	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1852	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1853	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q1854	8-729-425-64	TRANSISTOR 2SD2216Q	
Q2051	8-729-425-50	TRANSISTOR 2SB1462Q	
Q2052	8-729-425-50	TRANSISTOR 2SB1462Q	
Q2053	8-729-425-50	TRANSISTOR 2SB1462Q	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R251	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R252	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R253	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R254	1-216-001-00	METAL CHIP 10 5% 1/10W	
R255	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R256	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R257	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R258	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R259	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R260	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R261	1-216-815-11	METAL CHIP 330 5% 1/16W	
R262	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R263	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R264	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R265	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R266	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R267	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R268	1-218-893-11	METAL CHIP 82K 0.50% 1/16W	
R269	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R270	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R271	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R272	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R273	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R274	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R275	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	

Ref. No.	Part No.	Description				Remark
R276	1-218-883-11	METAL CHIP	33K	0.50%	1/16W	
R294	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R295	1-216-864-11	METAL CHIP	0	5%	1/16W	
R298	1-216-864-11	METAL CHIP	0	5%	1/16W	
R300	1-216-864-11	METAL CHIP	0	5%	1/16W	
R579	1-216-817-11	METAL CHIP	470	5%	1/16W	
R580	1-216-817-11	METAL CHIP	470	5%	1/16W	
R581	1-216-817-11	METAL CHIP	470	5%	1/16W	
R582	1-216-817-11	METAL CHIP	470	5%	1/16W	
R583	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R584	1-216-810-11	METAL CHIP	120	5%	1/16W	
R585	1-216-810-11	METAL CHIP	120	5%	1/16W	
R600	1-216-804-11	METAL CHIP	39	5%	1/16W	
R601	1-216-804-11	METAL CHIP	39	5%	1/16W	(TR910)
R602	1-216-804-11	METAL CHIP	39	5%	1/16W	(TR910)
R603	1-216-803-11	METAL CHIP	33	5%	1/16W	(TR910)
R604	1-216-803-11	METAL CHIP	33	5%	1/16W	(TR910)
R605	1-216-803-11	METAL CHIP	33	5%	1/16W	
R609	1-216-295-91	CONDUCTOR, CHIP (2012)				
R610	1-216-295-91	CONDUCTOR, CHIP (2012)				
R611	1-216-864-11	METAL CHIP	0	5%	1/16W	
R613	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR910)
R614	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR910)
R615	1-216-864-11	METAL CHIP	0	5%	1/16W	
R616	1-216-864-11	METAL CHIP	0	5%	1/16W	
R617	1-216-864-11	METAL CHIP	0	5%	1/16W	
R619	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TR910)
R620	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R621	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TR910)
R622	1-216-864-11	METAL CHIP	0	5%	1/16W	
R655	1-216-864-11	METAL CHIP	0	5%	1/16W	
R656	1-216-864-11	METAL CHIP	0	5%	1/16W	
R702	1-216-864-11	METAL CHIP	0	5%	1/16W	
R703	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R705	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R706	1-216-837-11	METAL CHIP	22K	5%	1/16W	(TR710)
R706	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR910)
R1001	1-216-806-11	METAL GLAZE	56	5%	1/16W	
R1002	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1003	1-216-818-11	METAL CHIP	560	5%	1/16W	
R1004	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1005	1-216-814-11	METAL CHIP	270	5%	1/16W	
R1006	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1007	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1008	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1009	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1010	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1011	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1012	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1013	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1014	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1016	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1017	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R1018	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R1020	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1021	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1023	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1024	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1025	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1026	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1027	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1029	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1030	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1031	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1032	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R1033	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1034	1-218-871-11	METAL CHIP	10K	0.50%	1/16W	
R1035	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1038	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1041	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1044	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1049	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1053	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1054	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1055	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1056	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1057	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1058	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1059	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1060	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1061	1-216-815-11	METAL CHIP	330	5%	1/16W	(TR910)
R1062	1-216-815-11	METAL CHIP	330	5%	1/16W	(TR910)
R1063	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR910)
R1064	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1065	1-216-820-11	METAL CHIP	820	5%	1/16W	(TR910)
R1066	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR910)
R1067	1-216-818-11	METAL CHIP	560	5%	1/16W	(TR910)
R1068	1-216-817-11	METAL CHIP	470	5%	1/16W	(TR910)
R1069	1-216-815-11	METAL CHIP	330	5%	1/16W	(TR910)
R1070	1-216-815-11	METAL CHIP	330	5%	1/16W	(TR910)
R1072	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	(TR910)
R1073	1-216-819-11	METAL CHIP	680	5%	1/16W	
R1074	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1075	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1076	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1079	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1080	1-216-818-11	METAL CHIP	560	5%	1/16W	
R1081	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1085	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1086	1-216-864-11	METAL CHIP	0	5%	1/16W	

Ref.No.	Part No.	Description	Remark
R1088	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1090	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1091	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1093	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R1094	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1095	1-216-815-11	METAL CHIP 330 5% 1/16W	
R1096	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1097	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1098	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1099	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1100	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1104	1-216-295-91	CONDUCTOR, CHIP (2012)	
R1105	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1106	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1108	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1109	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R1110	1-216-805-11	METAL CHIP 47 5% 1/16W	
R1111	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1112	1-216-818-11	METAL CHIP 560 5% 1/16W	
R1113	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R1114	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1151	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1152	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1153	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1154	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1155	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1156	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1157	1-216-808-11	METAL CHIP 82 5% 1/16W	
R1159	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1160	1-216-819-11	METAL CHIP 680 5% 1/16W	
R1162	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1163	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1164	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1165	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1213	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R1215	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1216	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1217	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R1218	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1219	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R1221	1-216-820-11	METAL CHIP 820 5% 1/16W	
R1222	1-216-820-11	METAL CHIP 820 5% 1/16W	
R1223	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1224	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1225	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1226	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1227	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1228	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1230	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1231	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1232	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1233	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1234	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R1235	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1236	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1237	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R1238	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1239	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1240	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1241	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1242	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1246	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1247	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1248	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R1249	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R1250	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1251	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1252	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1253	1-216-819-11	METAL CHIP 680 5% 1/16W	
R1254	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1255	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1256	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1280	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1281	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1283	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1284	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1285	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1286	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1290	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1292	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1293	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1307	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1308	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1312	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1313	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR910)
R1314	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1315	1-216-815-11	METAL CHIP 330 5% 1/16W	(TR910)
R1316	1-216-815-11	METAL CHIP 330 5% 1/16W	
R1318	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1319	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1321	1-218-876-11	METAL CHIP 16K 0.50% 1/16W	
R1322	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R1323	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1324	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1330	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1331	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R1332	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R1333	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1334	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1361	1-216-841-11	METAL CHIP 47K 5% 1/16W	

Ref.No.	Part No.	Description				Remark
R1362	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1363	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1364	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1365	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R1366	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1367	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1368	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1370	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1371	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1402	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R1403	1-218-903-11	METAL CHIP	220K	0.50%	1/16W	
R1404	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1406	1-218-901-11	METAL CHIP	180K	0.50%	1/16W	
R1407	1-218-873-11	METAL CHIP	12K	0.50%	1/16W	
R1408	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1409	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1410	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1415	1-162-925-11	CERAMIC CHIP	68PF	5%	50V	
R1418	1-218-903-11	METAL CHIP	220K	0.50%	1/16W	
R1419	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1421	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1422	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1423	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1424	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1425	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1426	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1429	1-218-909-11	METAL CHIP	390K	0.50%	1/16W	
R1430	1-218-909-11	METAL CHIP	390K	0.50%	1/16W	
R1431	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R1460	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1463	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1466	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1472	1-218-855-11	METAL CHIP	2.2K	0.50%	1/16W	
R1476	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1601	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1603	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1616	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1620	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1621	1-216-803-11	METAL CHIP	33	5%	1/16W	
R1622	1-216-803-11	METAL CHIP	33	5%	1/16W	
R1626	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1628	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1629	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1630	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1632	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1633	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1651	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1653	1-216-803-11	METAL CHIP	33	5%	1/16W	
R1716	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1717	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)

Ref.No.	Part No.	Description				Remark
R1718	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1719	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1720	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1721	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1722	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1723	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1724	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1725	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1726	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1727	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1728	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1729	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1730	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1751	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R1752	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1753	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1759	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1760	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1761	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1762	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1763	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1772	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1773	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1775	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1780	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1781	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1782	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1783	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1784	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1785	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1786	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1787	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1789	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1790	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1791	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1792	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1793	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1794	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1795	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1796	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1798	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1801	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1803	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1804	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1805	1-216-856-11	METAL CHIP	820K	5%	1/16W	
R1806	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	(TR710)
R1806	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR910)
R1807	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1808	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1809	1-216-845-11	METAL CHIP	100K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R1810	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1811	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1812	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1813	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1814	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1817	1-216-845-11	METAL CHIP	100K	5%	1/16W	(TR910)
R1818	1-216-837-11	METAL CHIP	22K	5%	1/16W	(TR910)
R1818	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR710)
R1820	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1821	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR910)
R1821	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR710)
R1822	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1823	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1826	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1827	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1836	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1851	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1852	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1853	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1855	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1856	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1857	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1859	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1860	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1861	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1862	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1863	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1865	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R1867	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1868	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1869	1-216-019-00	METAL CHIP	56	5%	1/10W	
R1872	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1873	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1874	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1875	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1876	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1877	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1878	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1880	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1881	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1882	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1883	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1884	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1887	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1888	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R1889	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1890	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1891	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1892	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1893	1-216-817-11	METAL CHIP	470	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R1894	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1895	1-216-800-11	METAL GLAZE	18	5%	1/16W	
R1896	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1897	1-216-808-11	METAL CHIP	82	5%	1/16W	
R2051	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R2052	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R2053	1-216-864-11	METAL CHIP	0	5%	1/16W	
R2054	1-216-864-11	METAL CHIP	0	5%	1/16W	
R2055	1-216-864-11	METAL CHIP	0	5%	1/16W	
R2056	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R2058	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R2059	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R2060	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2061	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2062	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2063	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R2064	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R2065	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R2070	1-217-671-11	METAL CHIP	1	5%	1/10W	
R2071	1-217-671-11	METAL CHIP	1	5%	1/10W	
R2072	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R2073	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	

< THERMISTOR >

TH1751	1-809-360-21	THERMISTOR, NTC (33k)

< VIBRATOR >

X1305	1-767-028-21	VIBRATOR, CRYSTAL (14MHz)
X1601	1-760-320-11	VIBRATOR, CRYSTAL (28.6363MHz)
X1751	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)
X1752	1-767-030-21	VIBRATOR, CRYSTAL (11.895104MHz)

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* A-7072-537-A VF-95 (VH4C) BOARD, COMPLETE
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(Ref. No. 5,000 Series)

< CAPACITOR >

C851	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C852	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C853	1-104-916-11	TANTAL. CHIP	6.8uF	20%	20V
C854	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C855	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C856	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C857	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C858	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C859	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C860	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C865	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C867	1-109-982-11	CERAMIC CHIP	1uF	10%	10V

Ref. No.	Part No.	Description	Remark
C868	1-165-128-11	CERAMIC CHIP 0.22uF	16V
C869	1-135-201-11	TANTALUM CHIP 10uF 20%	4V
C870	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C871	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C872	1-135-180-21	TANTALUM CHIP 3.3uF 20%	6.3V
C873	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C874	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C877	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C878	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
		< CONNECTOR >	
CN851	1-766-350-21	CONNECTOR, FFC/FPC 20P	
CN852	1-766-637-21	CONNECTOR, FFC/FPC 26P	
CN853	1-573-305-11	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D851	8-719-951-21	DIODE PR1102W-TR	
D852	8-719-043-70	DIODE MA6S121-(TX)	
D853	8-719-802-36	DIODE 1SS250	
		< IC >	
IC851	8-759-097-75	IC MB3789PFV-G-BND-ER	
IC852	8-759-337-40	IC NJM2904V(TE2)	
IC853	8-759-080-34	IC TA75W01FU-TE12R	
IC854	8-759-082-60	IC TC7S66FU(TE85R)	
IC855	8-759-338-78	IC BA10324AFV-E2	
IC857	8-759-079-66	IC TC74VHC123AFS(EL)	
		< COIL >	
L853	1-412-033-11	INDUCTOR CHIP 220uH	
L854	1-412-951-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q851	8-729-822-05	TRANSISTOR 2SD1622-ST-TD	
Q852	8-729-425-64	TRANSISTOR 2SD2216Q	
Q853	8-729-028-81	TRANSISTOR DTA123JUA-T106	
Q854	8-729-425-50	TRANSISTOR 2SB1462Q	
Q855	8-729-425-50	TRANSISTOR 2SB1462Q	
Q864	8-729-429-18	TRANSISTOR UN9213	
Q865	8-729-429-18	TRANSISTOR UN9213	
Q866	8-729-429-18	TRANSISTOR UN9213	
Q870	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R832	1-216-797-11	METAL CHIP 10 5% 1/16W	
R836	1-216-809-11	METAL CHIP 100 5% 1/16W	
R840	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R841	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R842	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R843	1-216-817-11	METAL CHIP 470 5% 1/16W	
R844	1-216-150-91	METAL GLAZE 10 5% 1/8W	
R846	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R849	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R850	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R851	1-216-819-11	METAL CHIP 680 5% 1/16W	
R852	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R853	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R854	1-218-901-11	METAL CHIP 180K 0.50% 1/16W	
R855	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R856	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R857	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R858	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R859	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R860	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R861	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R862	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R863	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R864	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R865	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R867	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R868	1-216-864-11	METAL CHIP 0 5% 1/16W	
R869	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R870	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R871	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R872	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R873	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R874	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R875	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R878	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R879	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R880	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R881	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R882	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R884	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R885	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R886	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R887	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R888	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R889	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R890	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R891	1-216-296-91	CONDUCTOR, CHIP (3216)	
R892	1-216-158-00	METAL GLAZE 22 5% 1/8W	
R895	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R896	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R898	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R899	1-216-845-11	METAL CHIP 100K 5% 1/16W	

VF-96

Ref. No.	Part No.	Description	Remark
*	A-7072-538-A	VF-96 (VH4C) BOARD, COMPLETE **************************** (Ref. No. 5,000 Series)	
		< CAPACITOR >	
C901	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C902	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C903	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C904	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C905	1-162-638-11	CERAMIC CHIP 1uF 16V	
C906	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C907	1-162-638-11	CERAMIC CHIP 1uF 16V	
C908	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C909	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C910	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C911	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C912	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C913	1-162-638-11	CERAMIC CHIP 1uF 16V	
C914	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C916	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C917	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C918	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C919	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C920	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C921	1-164-357-11	CERAMIC CHIP 1000PF 5% 50V	
C922	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C924	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C925	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C927	1-135-178-11	TANTAL. CHIP 1.5uF 20% 20V	
C929	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C930	1-135-179-21	TANTAL. CHIP 2.2uF 20% 16V	
C931	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C932	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C933	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C934	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C935	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		< CONNECTOR >	
CN901	1-766-658-21	CONNECTOR, FFC/FPC 22P	
CN902	1-573-925-11	CONNECTOR, FFC/FPC (ZIF) 16P	
		< DIODE >	
D901	8-713-102-80	DIODE 1T369-01-T8A	
		< IC >	
IC901	8-759-364-03	IC MB88146PFV-G-BND-ER	
IC902	8-752-058-95	IC CXA1515Q-T4	
IC904	8-752-378-00	IC CXD2411AR-T4	

Ref. No.	Part No.	Description	Remark
		< COIL >	
L901	1-412-951-11	INDUCTOR 10uH	
L902	1-412-951-11	INDUCTOR 10uH	
L903	1-412-959-11	INDUCTOR 47uH	
L904	1-412-955-11	INDUCTOR 22uH	
L905	1-412-949-21	INDUCTOR 6.8uH	
		< TRANSISTOR >	
Q901	8-729-425-50	TRANSISTOR 2SB1462Q	
Q902	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R901	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R902	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R903	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R904	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R905	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R906	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R907	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R908	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R909	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R911	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R912	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R913	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R914	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R915	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R917	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R921	1-218-905-11	METAL CHIP 270K 0.50% 1/16W	
R922	1-218-875-11	METAL CHIP 15K 0.50% 1/16W	
R923	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R924	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R929	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R930	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R934	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R935	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R936	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	

MISCELLANEOUS

****

Ref. No.	Part No.	Description	Remark
52	1-473-604-11	SWITCH BLOCK, CONTROL (CF-6300)	
159	1-660-301-11	FP-430 FLEXIBLE BOARD	
167	1-660-292-11	FP-394 FLEXIBLE BOARD	
202	1-660-278-11	FP-378 FLEXIBLE BOARD	
206	1-660-279-11	FP-379 FLEXIBLE BOARD	
207	1-660-277-11	FP-377 FLEXIBLE BOARD	
209	1-660-302-11	FP-435 FLEXIBLE BOARD	
211	1-660-286-11	FP-387 FLEXIBLE BOARD	
212	1-660-283-11	FP-383 FLEXIBLE BOARD	
213	1-660-300-11	FP-426 FLEXIBLE BOARD (TR910)	

Ref. No.	Part No.	Description	Remark
251	1-661-052-11	FP-457 FLEXIBLE BOARD	
252	1-694-076-11	TERMINAL BOARD, BATTERY	
258	1-547-787-61	FILTER BLOCK, OPTICAL	
262	1-660-531-11	FP-429 FLEXIBLE BOARD	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
BL002	1-517-528-11	LIGHT, BACK	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P (TR910)	
D001	8-719-988-42	DIODE GL453	
IC401	A-7030-638-A	CCD BLOCK ASSY (CCD IMAGER) (079 SERVICE)	
J201	1-537-747-21	TERMINAL BOARD (TR910)	
J201	1-537-747-41	TERMINAL BOARD (TR710)	
J902	1-565-276-21	JACK, ULTRA SMALL 1P	
J903	1-695-514-21	JACK (SMALL TYPE) 1P	
LCD901	1-801-207-11	DISPLAY PANEL, LIQUID CRYSTAL	
LCD902	8-753-015-20	LCX005BK-1	
M901	A-7048-831-A	DRUM ASSY (DGH-0D1A-R)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
M905	1-698-760-01	MOTOR, FOCUS STEPPING	
M906	1-698-759-01	MOTOR, ZOOM STEPPING	
MIC901	1-542-259-11	MICROPHONE, CAP	
MIC902	1-542-259-11	MICROPHONE, CAP	
⚠ND801	1-517-414-21	FLUORESCENT TUBE (0.55 INCH)	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (HI8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C. LOCK)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	
S903	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
S904	1-553-977-00	SWITCH, SLIDE (STANDBY, LOCK)	

ACCESSORIES & PACKING MATERIALS

****

Ref. No.	Part No.	Description	Remark
	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR710)	
	1-569-008-11	ADAPTER, CONVERSION 2P (E, JE, HK)	
	1-575-334-11	CORD, CONNECTION (A/V connecting cable (STEREO), 1.5m)	
	3-856-186-21	MANUAL, INSTRUCTION (ENGLISH) (US, CND)	
	3-856-186-31	MANUAL, INSTRUCTION (FRENCH) (CND)	
	3-856-187-51	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (E, JE, HK)	
	3-856-187-61	MANUAL, INSTRUCTION (CHINESE) (E, HK)	
	3-856-187-71	MANUAL, INSTRUCTION (KOREAN) (JE)	
	3-947-969-21	BELT (S), SHOULDER	
*	3-968-806-01	CUSHION, ACC	
*	3-968-807-01	CUSHION (LOWER)	
*	3-968-808-11	CARTON, INDIVIDUAL (TR910:US, CND)	
*	3-968-808-21	CARTON, INDIVIDUAL (E, HK)	
	8-917-540-90	REMOCON RMT-715//M SET (TR910)	
⚠	A-7009-233-A	AC POWER ADAPTOR (AC-V316)	
		CARTON, INDIVIDUAL (TR710)	
	A-7092-699-A	CASE (L) ASSY, BATTERY (CND)	
	A-7092-936-A	CASE (L) ASSY (U), BATTERY (US)	
**	NP-F530	BATTERY PACK	

NOTE.

** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Be sure to read "Note on the CCD Imager replacement" on page 4-8 when changing the CCD imager.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

1-1-6. Page E Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page F, Page E Data Initialization" and "Page E Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
00	69	69	←
01	89	89	←
02	15	15	←
03	52	52	←
04	61	61	←
05	6C	6C	←
06	93	93	←
07	AA	AA	←
08	65	65	←
09	44	44	←
0A	A2	A2	←
0B	92	92	←
0C	63	63	←
0D	40	40	←
0E	61	61	←
0F	33	33	←
10	05	05	←
11	F3	F3	←
12	00	00	←
13	00	00	←
14	00	00	←
15	20	20	←
16	2A	2A	←
17	EB	EB	←
18	1F	1F	←
19	00	00	←
1A	42	42	←
1B	30	30	←
1C	53	53	←
1D	31	31	←
1E	F8	F8	←
1F	00	00	←
20	37	37	←
21	7D	7D	←
22	9F	9F	←
23	00	00	←
24	00	00	←
25	00	00	←

Table 6-1-3 (1).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
26	30	30	←
27	50	50	←
28	E0	E0	←
29	00	00	←
2A	00	00	←
2B	00	00	←
2C	10	10	←
2D	20	20	←
2E	25	25	←
2F	79	79	←
30	00	00	←
31	00	00	←
32	00	00	←
33	00	00	←
34	00	00	←
35	00	00	←
36	10	10	←
37	30	30	←
38	10	10	←
39	50	50	←
3A	1C	1C	←
3B	4C	4C	←
3C	25	25	←
3D	29	29	←
3E	09	09	←
3F	07	07	←
40	CC	CC	←
41	00	00	←
42	40	40	←
43	1E	1E	←
44	00	00	←
45	F8	F8	←
46	30	30	←
47	10	10	←
48	04	04	←
49	04	04	←
4A	6C	6C	←
4B	00	00	←
4C	77	77	←
4D	41	41	←
4E	02	02	←
4F	1F	1F	←
50	F8	F8	←
51	F8	F8	←
52	9C	9C	←

Table 6-1-3 (2).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
53	8E	8E	←
54	74	74	←
55	5F	5F	←
56	4A	4A	←
57	3F	3F	←
58	2F	2F	←
59	10	10	←
5A	00	00	←

Table 6-1-3 (3).

1-1-7. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 6-1-4. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

②

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① → B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 6-1-4.

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Initialization of E, F Page Data

Note: If the E, and F page data has been initialized, the "Modification of F Page Data", and "Modification of E Page Data", "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments" need to be performed again.

Initializing method:

Adjusting page	E
Adjusting address	00 to 5A
Adjusting page	F
Adjusting address	10 to FF

1) Set data: 01 to page: 0, address: 01.
2) Set data: 2D to page: 2, address: 00.
3) Set data: 2D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 2, address: 02 is 01.
5) Set data: 00 to page: 0, address: 01.
6) After performing "Modification of E, F Page Data", perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

2. Modification of F Page Data

If the E and F page data has been initialized, change the data as shown in the table on the right by manual input.

Note 1: Before changing the data, set data: 80 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the new data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01. Also perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

Address	CCD-TR910	CCD-TR710
00	A5	A7
02	(03)[04]	03
05	B4	B4
06	B8	B8
07	5E	5E
08	49	49
09	59	59
0A	6B	6B
0B	8D	8D
1C	76	76
1D	00	00
20	00	00
21	00	00
27	(40)[41]	40
28	46	44
59	AA	AA
5A	B8	B8
5B	B8	B8
61	3A	3A
68	30	30
69	40	40
6A	28	28
6B	00	00
6C	6A	6A
6F	15	15
80	A8	A8
83	19	19
8F	01	01
90	68	68
91	80	80
92	70	70
93	60	60
94	68	68
95	70	70
96	40	40
97	2E	2E
98	58	58
99	A0	A0
9A	30	30
9B	14	14
9C	58	58

Address	CCD-TR910	CCD-TR710
9D	C0	C0
9E	30	30
9F	26	26
A0	78	78
A1	70	70
A2	4C	4C
A3	06	06
A4	58	58
A5	D0	D0
A6	60	60
A7	0F	0F
A8	62	62
A9	91	B3
AA	62	62
AB	A2	A2
AC	62	62
AD	91	80
AE	62	62
AF	A2	A2
B1	E5	E5
B3	F7	F7
B4	40	
B8	21	21
B9	05	05
BA	11	11
BB	06	06
BC	71	71
BD	15	15
BE	20	20
D1	30	30
D2	20	20
DF	00	00
E0	F7	F7
E1	1A	1A
E2	33	33
E3	FE	FE
E9	4D	4D

Note: ( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model

3. Modification of E Page Data

If the E and F page data has been initialized, change the data as shown in the following table by manual input.

Note 1: Before changing the data, set data: 01 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the new data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01. Also perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

Address	CCD-TR910	CCD-TR710
15	20	20
16	2A	2A
20	37	37
21	7D	7D
22	9F	9F
26	30	30
27	50	50
28	E0	E0
36	10	10
37	30	30
38	10	10
39	50	50
3A	1C	1C
3B	4C	4C
3C	25	25
3D	29	29
3E	09	09
40	CC	CC
41	00	00
46	30	30
48	04	04
4E	02	02
50	F8	F8
51	F8	F8

4. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and hall offset.

Subject	Not required
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3B, 3C
Specified Value	13 to 17 during IRIS OPEN (Note 1) 7F to 83 during IRIS CLOSE (Note 2)

Note 1: Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

Note 2: Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 0, address: 03.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 80 to page: F, address: 3C, and press the PAUSE button of the adjusting remote commander.
6) Set data: 40 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
7) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and this data is named W_2.
8) Set data: 30 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
9) Read the DDS display data, and this data is named W_1.
10) Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
11) Read the DDS display data, and this data is named K_1.
12) Set data: 40 to page: F, address: 3B, and press the PAUSE button.
13) Read the DDS display data, and this data is named K_2.
14) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 6-1-4. "Hexadecimal notation-decimal notation conversion table".)
15) Calculate X_1' using the following equations (decimal notation calculation).

$$A' = W_2' + K_1' - W_1' - K_2' \quad \text{.......... Equation 1}$$

$$B' = W_1' - K_1' \quad \text{.......... Equation 2}$$

$$X_1' = \frac{1728 + (48 \times A') - (16 \times B')}{A'} \quad \text{.......... Equation 3}$$

16) Convert X_1' to hexadecimal notation, and obtain X_1. (Round off to one decimal place)
17) Set data: X_1 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
18) Change the data of page: F, address: 3C, and adjust the DDS display data to "15".

19) Press the PAUSE button of the adjusting remote commander.
20) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
21) Read the DDS display data, and this data is named W_0. If W_0 lies within the "7F" to "83" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
22) Convert W_0 to decimal notation, and obtain W_0'.
23) Calculate X_2' using the following equations (decimal notation calculation).

$$C' = W_0' - B' - 21 \quad \text{.......... Equation 4}$$

$$X_2' = \frac{(108 - B') \times (X_1' - 48) + 48 \times C'}{C'} \quad \text{........ Equation 5}$$

(X_1' and B' are values obtained from equations 2 and3)
24) Convert X_2' to hexadecimal notation and obtain X_2. (Round off to one decimal place)
25) Set data X_2 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
26) Change the data of page: F, address: 3C, and adjust the DDS display data to "81".
27) Press the PAUSE button of the adjusting remote commander.
28) Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
29) Check that the DDS display data lies within the "13" to "17" range.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 03.
4) Set data: 00 to page: 0, address: 01.

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. If it is not adjusted correctly, it will be out of focus during auto focusing /manual focusing.

5-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2 m from the front of the lens) (Luminance: 300 ± 50 lux)
Measurement Point	Check operations on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting method:
1) Check that at both the zoom lens TELE terminal and WIDE terminal, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Set data: 01 to page: 0, address: 01.
3) Check that the data of page: F, address: 2E to 33, 49 to 4D is the initial value (see table below).

Address	Data	Address	Data
2E	A6	33	11
2F	1A	49	25
30	15	4A	00
31	24	4B	19
32	8C	4C	00

4) Check that the data of page: 2, address: 02 is 00.
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 27 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
(The adjustment data will be automatically input to page: F, address: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments
1) Turn OFF the main power supply (8.4V)
2) Perform "Flange Back Adjustment (2)".

5-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting Method:

1) Set the IRIS to open. (Use a ND filter)
2) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subjects with clear contrast such as buildings, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
3) Set data: 01 to page: 0, address: 01.
4) Check that the data of page: 2, address: 02 is "00".
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 27 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
   (Adjustment data will automatically be input to page: F, addresses: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Turn OFF the main power supply (8.4V).
3) Perform "Flange Back Check".

6. Flange Back Check

Subject	Siemens star (2m from the front of the lens Luminance: approx. 200 lux)
Measurement Point	Check the operation on the TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Checking method:

1) Place the Siemens star 2m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appears on the image.
3) Set data: 02 to page: 2, address: 40.
4) Set data: 01 to page: 2, address: 41.
5) Shoot the siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note 1), and turn off the auto focus
8) Set data: 10 to page: 2, address: 21.
9) Shoot the siemens star with the zoom WIDE end.
10) Check that the lens is focused.

Note 1: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on page 1 of the adjusting remote commander.

1) Set data: 0F to page: 0, address: 03.
2) Page 1 shows the state of the focus.

1 : 00 : XX → (Odd: Focused
Even: Unfocused)

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 21.
2) Set data: 00 to page: 0, address: 03.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 2, address: 41.

7. Picture Frame Setting

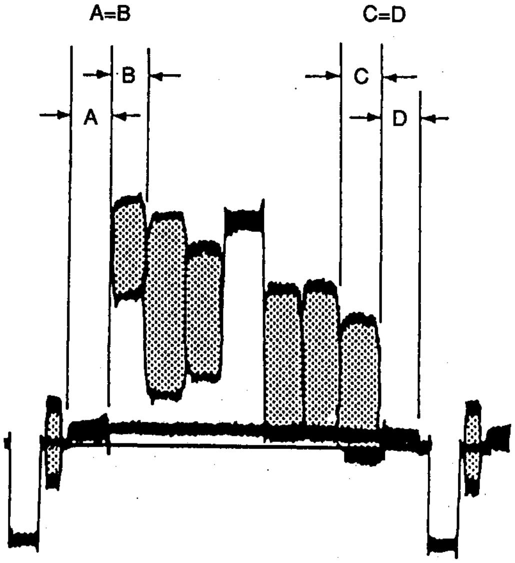
Subject	Color bar chart standard picture frame (2m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A = B, C = D, t = 0 ± 0.1 msec

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame".

Check on the oscilloscope

1. horizontal period



2. Vertical period

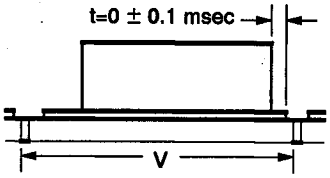


Fig. 6-1-7.

Check on the TV monitor

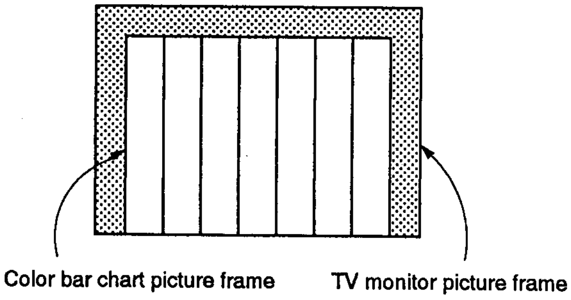

Color bar chart picture frame
TV monitor picture frame

Fig. 6-1-8.

8. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that the proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3F, 41, DF, E0
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 3D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 3F to page: F, address: 22, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of addresses 3F, 41, DF and E0 of page: F, and settle each color luminance point in each color reproduction frame.

   Note 1: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses.
   If not, the new data will not be written to the memory.
6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01 and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 0, address: 01.

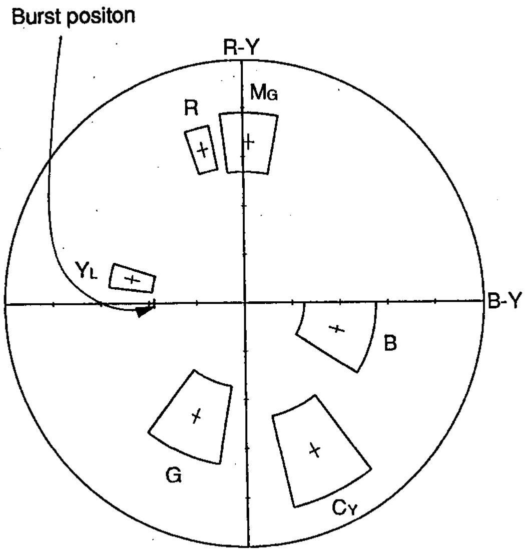


Fig. 6-1-9.

9. IRIS IN/OUT Adjustment

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.
If the level is not correct, the white balance will not be accurate.

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	47, 48

Switch setting:

1) STEADY SHOT switch (S103 on CF block) .... OFF

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 06 to page: 0, address: 03.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 02 to page: 2, address: 40.
5) Set data: 0B to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS display data (Note 1), and take the upper two digits as D_1 and the lower two as D_2.
7) Convert D_1 to a decimal number and obtain D_1'. (Refer to Table 6-1-4. "Hexadecimal Notation-Decimal Notation Conversion Table".)
8) Calculate D_3' using the following equations. (Equations 1 and 2 are for decimal notation calculation)

   When $D_2 \geq D0$

   $D_3' = D_1' - 21$ .... Equation 1

   When $D_2 < D0$

   $D_3' = D_1' - 22$ .... Equation 2
9) Convert D_3' to a hexadecimal number and obtain D_3.
10) Set D_3 to page: F, address: 47, and press the PAUSE button of the adjusting remote commander.
11) Set data: 09 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data (Note 1), and take the upper two digits as D_4 and the lower two as D_5.
13) Convert D_4 to a decimal number and obtain D_4'. (Refer to Table 6-1-4. "Hexadecimal Notation-Decimal Notation Conversion Table".)
14) Calculate D_6' using the following equations. (Equations 3 and 4 are for decimal notation calculation)

    When $D_5 \geq F0$

    $D_6' = D_4' - 13$ .... Equation 3

    When $D_5 < F0$

    $D_6' = D_4' - 14$ .... Equation 4

15) Convert D6' to a hexadecimal number and obtain D6.
16) Set D6 to page: F, address: 48, and press the PAUSE button of the adjusting remote commander.

Note 1: The right four digits of the display data at the right bottom side of the EVF and monitor TV is the LIGHT LEVEL data. If the lower digits change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the average value.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 0, address: 03.
5) Set data: 00 to page: 0, address: 01.

10. MAX GAIN Adjustment

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3D
Specified Value	B0 to B8

Switch setting:
1) STEADY SHOT switch (S103 on CF block) .... OFF

Adjusting method:
1) Set data: 01 to page: 0, address: 01.
2) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 01 to page: 0, address: 03.
4) Set data: 02 to page: 2, address: 40.
5) Set data: 40 to page: 2, address: 56.
6) Set data: 19 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Change the data of page: F, address: 3D and adjust so that the DDS display data (Note 2) lies within the specified value.
8) Press the PAUSE button of the adjusting remote commander.

Note 1: The right two digits of the display data at the right bottom side of the EVF and monitor TV is the object data. If the data change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the avarage value.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 2, address: 56.
5) Set data: 00 to page: 0, address: 03.
6) Set data: 00 to page: 0, address: 01.

11. Auto White Balance Standard Data Input

Subject	Clear chart (Color bar standard picture frame)
Adjustment Page	F
Adjustment Address	2A to 2D

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 2, address: 02 is 00. If not, turn the power of the unit OFF/ON.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Wait for 2 seconds.
3) Set data: 11 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Set data: 0D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander. (When the standard data is taken in, the data will be automatically input to addresses 2A to 2D of page F.)
5) Check that the data of page: 2, address: 02 is 01.
6) Perform "Auto White Balance Adjustment".

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 0, address: 01.

12. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	45, 46
Specified Value	R ratio: 2B40 to 2BC0 B ratio: 5E40 to 5EC0

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 3F to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 04 to page: 0, address: 03.
6) Change the data of page: F, address: 45, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to the R ratio specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Set data: 05 to page: 0, address: 03.
9) Change the data of page: F, address: 46, and adjust the average value of the DDS display data to the B ratio specified value.
10) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 03.
4) Set data: 00 to page: 0, address: 01.

13. White Balance Check

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 6-1-10. A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Set data: 0F to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown in Fig. 6-1-10.A.
4) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 23 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown in Fig. 6-1-10. B.
8) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
9) Check that the center of the white luminance point settles in the circle shown in Fig. 6-1-10. C.

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

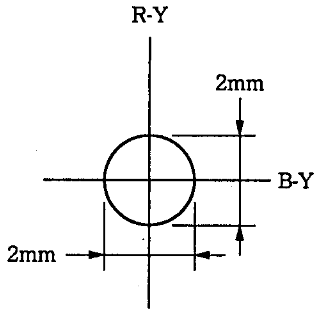


Fig. 6-1-10. A

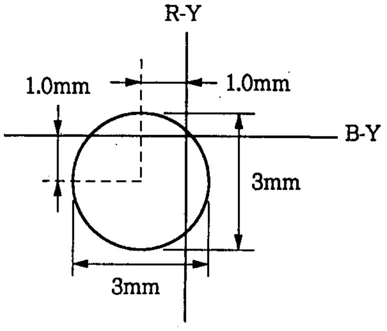


Fig. 6-1-10. B

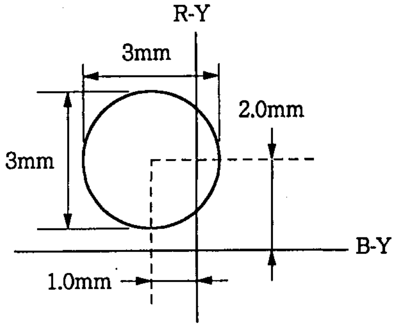


Fig. 6-1-10. C

14. Velocity Sensor Sensitivity Adjustment

- This adjustment is performed only when replacing the velocity sensor.
  Although this adjustment need not be performed when the circuit is damaged, etc., check the operations.
- Note down the sensitivity displayed on the velocity sensor of the repair parts. At this time, note down also to which board it was attached to.
  Be sure to check because if attached incorrectly, the screen will vibrate up and down or left and right during hand-shake correction operations.

Precautions on Parts Replacement

There are two types of repair parts-ENC05EA and ENCO5EB. Replace the broken sensor with a same type of sensor. If ENCO5EA and ENCO5EB are attached correctly, the screen will vibrate up and down or left and right during hand-shake correction operations. After replacing, re-adjust according to the adjusting method after replacement.

Precautions on Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it is dropped, the the balance of the oscillator will be disrupted and operations will not be performed properly.

Adjusting page	F
Adjusting address	52, 53

Note: The sensor sensitivity of SE451 and SE452 of the SE-51 board is written only on the repair parts.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Read the sensor sensitivity written on SE452 of the SE-51 board, and take this as S_{452}.
3) Read the sensor sensitivity written on SE451 of the SE-51 board, and take this as S_{451}.
4) Calculate D_{52}' and D_{53}' using the following equation (decimal calculation).

$$D_{52}' = \frac{135}{S_{452}}$$

$$D_{53}' = \frac{130}{S_{451}}$$

5) Convert D_{52}' and D_{53}' into hexadecimal digits, to obtain D_{52} and D_{53}. (Round off decimal points)
6) Set data: D_{52} to page: F, address: 52, and press the PAUSE button of the adjusting remote commander.
7) Set data: D_{53} to page: F, address: 53, and press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Check that the hand-shake correction operations have been performed normally.

1-3. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

Note 1: The backlight (fluorescent tube) is driven by a high voltage AC power supply.
Therefore, be careful not to touch the backlight holder as you will receive an electric shock.

Note 2: When replacing the LCD unit, ensure there will be no damages by static electricity.

Note 3: Set the VF PW-SAVE (Menu display) to "OFF" position, unless specified otherwise.

[Adjusting connector]

Some measuring points for adjusting the view-finder are concentrated at CPC of the FP-379 board. Connect the measuring equipments via CPC-5 jig (J-6082-351-A). The following table lists the pin numbers and signal names of CPC.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

Table 6-1-5.

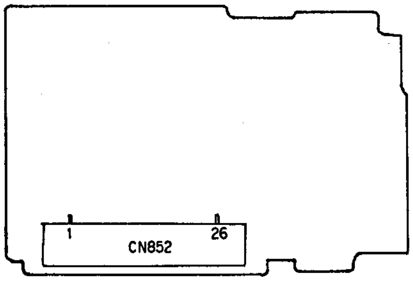
[Power Supply Voltage]

Adjust the power supply voltage for the battery pin so that Pin ⑲ (EVF UNREG) of CPC of the FP-379 board becomes 6.0 ± 0.1 Vdc.

1. Power Supply Voltage Check (VF-95 board)

Mode	Record
Measuring Instrument	Digital voltmeter
13.5V check	
Measurement Point	Pin ⑪ of CN852
Specified Value	13.5 ± 0.3 Vdc
12.0V check	
Measurement Point	Pin ⑩ of CN852
Specified Value	12.0 ± 0.3 Vdc

VF-95 board (Component side)



2. EVR Initial Data Input

Mode	VTR STOP
Signal	Arbitary
Adjustment Page	D
Adjustment Address	40 to 51

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Select page D, and input the data in the following table.
   Note: To write in the nonvolatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time the data is set.
3) Set data: 00 to page: 0, address: 01.

Address	Data	Address	Data
40	38	49	A6
41	00	4A	AD
42	20	4B	6F
43	20	4C	93
44	82	4D	93
45	00	4E	B0
46	88	4F	B4
47	73	50	48
48	A3	51	40

3. VCO Adjustment (VF-96 board)

Set the VCO freerun frequency.
If deviated, the EVF screen will be blurred.

Mode	VTR stop (Adjustment mode 1)
Signal	Arbitrary
Measurement Point	Pin ⑱ of CPC of FP-379 flexible board (VCO)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Page	D
Adjustment Address	4F
Specified Value	A = 1.8 ± 0.1V

Adjusting method:

1) Check the GND level of the oscilloscope.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 03 to page: 0, address: FF.
4) Set data: 05 to page: 2, address: 01.
5) Set data: 02 to page: 3, address: 30.
6) Set data: 00 to page: 0, address: FF.
7) Change the data of page: D, address: 4F, and set the PCO output voltage (A) to the specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 03 to page: 0, address: FF.
10) Set data: 05 to page: 2, address: 01.
11) Set data: 00 to page: 3, address: 30.
12) Set data: 00 to page: 0, address: FF.
13) Set data: 00 to page: 0, address: 01.

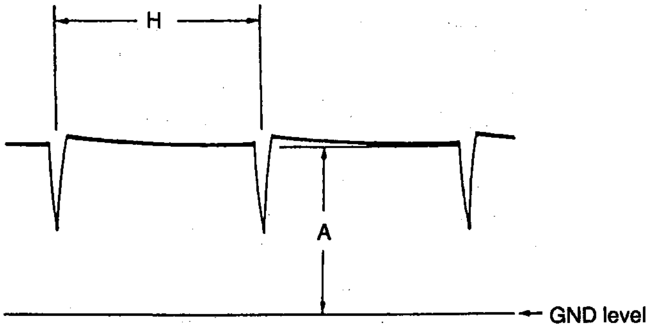


Fig. 6-1-11.

4. Bright Adjustment (VF-96 board)

Set the VIDEO signal level for driving the LCD to the appropriate value. If deviated, the LCD screen may become blackish or saturated (whitish).

Mode	VTR stop (Adjustment mode 2)
Signal	Arbitrary
Measurement Point	Pin ⑳ of CPC of FP-379 flexible board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	48
Specified Value	A = 7.1 ± 0.15V

Connection:

1) Connect a 3.3 kΩ between Pin ⑳ and Pin ⑦ of CPC (REG GND).

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Input the following data to page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	00	00	00	00	00	00

3) Set data: 03 to page: 0, address: FF.
4) Set data: 05 to page: 2, address: 01.
5) Set data: 01 to page: 3, address: 31.
6) Set data: 00 to page: 0, address: FF.
7) Change the data of page: D, address: 48, and set the voltage (A) between the reverse waveform pedestal and on-reverse waveform pedestal to the specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 03 to page: 0, address: FF.
10) Set data: 05 to page: 2, address: 01.
11) Set data: 00 to page: 3, address: 31.
12) Set data: 00 to page: 0, address: FF.
13) Input the following table in page: D, address: 40 to 45.
    Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	38	00	20	20	82	00

14) Set data: 00 to page: 0, address: 01.

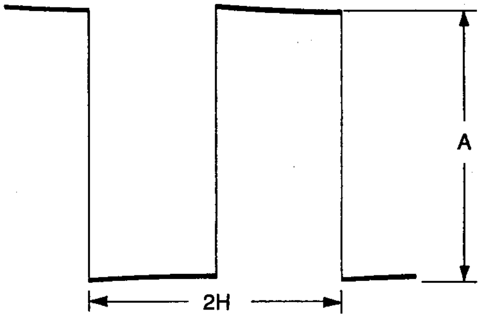


Fig. 6-1-12.

5. Contrast Adjustment (VF-96 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen may become inconsistent or blackish/saturated (whitish).

Mode	VTR stop (Adjustment mode 1)
Signal	Arbitrary
Measurement Point	Pin ⑳ of CPC of FP-379 flexible board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4B
Specified Value	A = 1.75 ± 0.1V

Connection:

1) Connect a 3.3 kΩ between Pin ⑳ and Pin ⑦ of CPC (REG GND).

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 0, address: FF.
3) Set data: 05 to page: 2, address: 01.
4) Set data: 02 to page: 3, address: 30.
5) Set data: 01 to page: 3, address: 31.
6) Set data: 00 to page: 0, address: FF.
7) Change the data of page: D, address: 4B, and set the voltage (A) between white 50% and the pedestal to the specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 03 to page: 0, address: FF.
10) Set data: 05 to page: 2, address: 01.
11) Set data: 00 to page: 3, address: 30.
12) Set data: 00 to page: 3, address: 31.
13) Set data: 00 to page: 0, address: FF.
14) Set data: 00 to page: 0, address: 01.

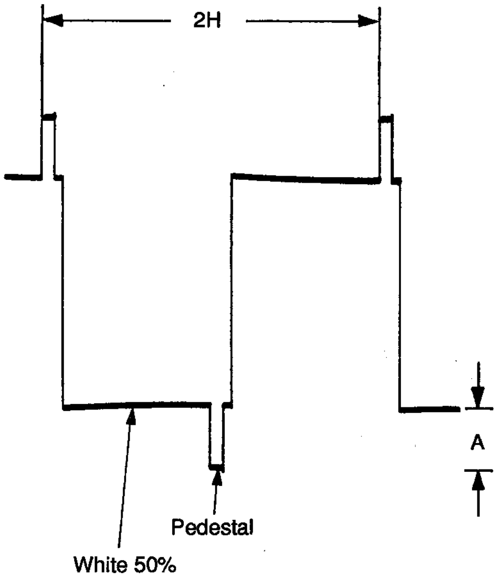


Fig. 6-1-13.

6. Backlight Consumption Current Adjustment (VF-95 board)

Set the back light luminance and color temperature.
If deviated, the image may becomes too dark or bright.

Mode	VTR stop (Adjustment mode 1)
Signal	Arbitrary
Measurement Point	+ Probe: Pin ⑲ of CPC of FP-379 flexible board (EVF UNREG) – Probe: Pin ⑰ of CPC of FP-379 flexible board (EVF UNREG (–)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	50
Specified Value	A = 20.0 ± 1.0 mVdc

Note: Adjust 30 seconds after running on the power supply.

Adjusting method:

1) Check that the voltage of Pin ⑲ (EVF UNREG) of CPC of the FP-379 board is 6.0 ± 0.1 Vdc.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 03 to page: 0, address: FF.
4) Set data: 05 to page: 2, address: 01.
5) Set data: 02 to page: 3, address: 30.
6) Set data: 00 to page: 0, address: FF.
7) Change the data of page: D, address: 50, and set the potential difference (A) between EVF UNREG and EVF UNREG (–) to the specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 03 to page: 0, address: FF.
10) Set data: 05 to page: 2, address: 01.
11) Set data: 00 to page: 3, address: 30.
12) Set data: 00 to page: 0, address: FF.
13) Set data: 00 to page: 0, address: 01.

7. White Balance Adjustment (VF-96 board)

Correct the white balance.
If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop (Adjustment mode 1)
Signal	Arbitrary
Measurement Point	Check on the LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	49, 4A
Specified Value	The LCD display should be B/W.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set the data of page: D, addresses: 49 and 4A to the initial value.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	Data
49	A6
4A	AD

3) Set data: 03 to page: 0, address: FF.
4) Set data: 05 to page: 2, address: 01.
5) Set data: 02 to page: 3, address: 30.
6) Set data: 00 to page: 0, address: FF.
7) Check that the LCD display is B/W. If colored, change the data of page: D, addresses: 49 and 4A so that the LCD display becomes B/W.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.
8) Set data: 03 to page: 0, address: FF.
9) Set data: 05 to page: 2, address: 01.
10) Set data: 00 to page: 3, address: 30.
11) Set data: 00 to page: 0, address: FF.
12) Set data: 00 to page: 0, address: 01.

8. AUTO ON Level Adjustment (VF-95 board)

Adjust the power save sensor, and maintain at the level at which the backlight is AUTO ON.

Mode	VTR stop (Adjustment mode 2)
Signal	Arbitrary
Measurement Point	Check that the backlight lights up
Measuring Instrument	
Adjustment Page	D
Adjustment Address	51
Specified Value	AUTO OFF distance Above 12 cm, less than 14 cm (Note 2) AUTO ON distance Above 9 cm, less than 11 cm (Note 2)

Note 1: Do not perform this adjustment in strong light or under lights.

Note 2: The specified value is the adjustment value during adjustments. The specified value during operation checks is as follows.
AUTO OFF distance: Above 9 cm, less than 15 cm
AUTO ON distance: Above 7 cm, less than 13 cm

Switch setting:

1) Set the "VF PW-SAVE" on the menu screen to "ON".

Adjustment preparation:

1) Prepare a 30 cm x 30 cm white paper, and place it 10 cm away from the EVF lens.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Input the following data to page: D, addresses: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	00	00	00	00	00	00

3) Increase the data of page: D, address 51, and turn on the backlight.
4) Decrease the data of page: D, address: 51 slowly, and turn off the backlight.
5) Press the PAUSE button of the remote commander.
6) Move the white paper away from the EVF lens and turn off the backlight. Then move it to the lens slowly, and check that the backlight lights up when the distance (AUTO ON distance) is the specified value.
7) Move the white paper near the EVF lens so that the backlight lights up, and then move it away, and check that the back light goes off when the distance (AUTO OFF distance) is the specified value.
8) Input the following data to page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	38	00	20	20	82	00

9) Set data: 00 to page: 0, address: 01.

6-2. MECHANICAL SECTION ADJUSTMENT

Mechanism Parts Adjustments

For details on the adjustments and checks of mechanical section and replacements of mechanism parts, refer to the separate volume- "8 mm Video Mechanism Adjustment Manual VII B Mechanism".

2-1. OPERATING WITHOUT A CASSETTE

1) Refer to "2. DISASSEMBLY" and supply the power with the cabinet removed. (So that the mechanical deck can be operated.)
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Set data: 01 to page: 0, address: 01.
6) Set data: 01 to page: F, address: 29, and press the PAUSE button of the adjusting remote commander.
7) Set data: 04 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.

By carrying out the above procedure, the unit can be operated without loading a cassette.
Be sure to carry out "Processing after Operations" after checking the operations.
Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply ON mode or forced camera power supply ON mode are to be used together.

Forced VTR power supply ON mode..........06
Forced camera power supply ON mode......05

[Processing after Operations]

1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: F, address: 29, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments

1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 29, and set data: 04 and press the PAUSE button of the adjusting remote commander.
(Be sure to perform "Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
Channel 1-Pin ⑨ of CPC of FP-379 flexible board
External trigger-Pin 4 of CPC of FP-379 flexible board
(Connect the oscilloscope via the multi CPC-5 jig (J-6082-351-A).)
7) Playback the alignment tape for tracking (WR5-1NP).
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
If not flat, perform necessary adjustment according to the separate "8 mm Video Mechanical Adjustment Manual VII (B Mechanism)".
9) Perform "Processing after operations", after completing adjustments.

CPC of FP-379 flexible board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

[Processing after operations]

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 29, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.
6) Remove the power supply from the unit.

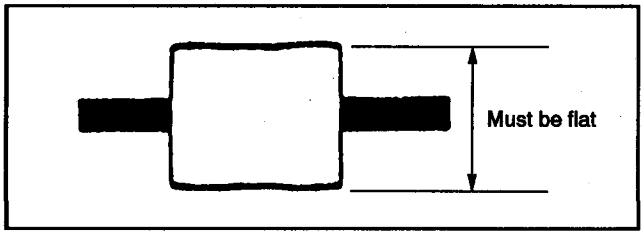


Fig. 6-2-1.

6-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6–54.

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

3-1-1. Equipments to be Used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1NP)
      Part Code: 8-967-995-02
    - For video frequency characteristics adjustment (WR5-7NE) Part Code: 8-967-995-13
    - For checking Standard 8 mm mode operations
      For LP (WR5-4NL)
      Part Code: 8-967-995-51
      For SP (WR5-5NSP)
      Part Code: 8-967-995-42
      Note: The following alignment tapes can also be used.
      1) WR5-4NSP (8-967-995-41)
    - For checking Hi8 mode operations
      For SP (WR5-8NSE)
      Part Code: 8-967-995-43
      For LP (WR5-8NLE)
      Part Code: 8-967-995-52
    - For checking AFM stereo operations (WR5-9NS)
      Part Code: 8-967-995-23
      For checking BPF adjustment (WR5-11NS)
      Part Code: 8-967-995-71
12) Remote commander for adjustment (J-6082-053-B)
13) CPC-5 jig Part Code: J-6082-351-A
14) Power code Part Code: J-6082-223-A
15) AFM DEV jig (J-6082-312-A)
16) Extension cable (60P, 0.5 mm) (J-6082-356-A)

3-1-2. Precautions in Adjustment

1) The adjustments of this unit can be performed in the VTR mode (S video terminal input or video terminal input mode) or in the camera mode.
   When set to the VTR mode, set the power switch to "Video" or set to the "forced VTR power supply ON mode" using the adjusting remote commander.
   To set to the camera mode, set the power switch to "Camera" or set to the "forced camera+VTR power supply ON mode" (Note 2) using the adjusting remote commander.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode" (Note 1) and "forced camera+VTR power supply ON mode". (Note 3)
2) The front panel block (MA-268 board) need not be connected. To disconnect, disconnect the following connector.
   1. CN303 of MA-268 board (13P, 0.5 mm)
3) The lens block (CD-148 board) and accessory shoe are not required for video section adjustments (excluding the battery end adjustment). During adjustments, disconnect the following three connectors.
   1. CN113 of VC-177 board (23P, 0.5 mm)
   2. CN112 of VC-177 board (16P, 0.5 mm)
   3. CN205 of VC-177 board (10P, 0.5 mm) (CCD-TR910)
4) The viewfinder need not be connected. To disconnect, disconnect the following connector.
   1. CN111 of VC-177 board (20P, 0.5mm)
5) The cabinet (R) (CF block, LC-52 board) need not be connected be set to the "forced VTR power supply ON mode" or "forced camera+VTR power supply ON mode" (excluding battery end adjustment). To disconnect, disconnect the following connector.
   1. CN502 of VC-177 board (24P, 0.5 mm)
      After completing adjustments, be sure to exit the "forced VTR power supply ON mode" and "forced camera+VTR power supply ON mode". (Note 3)

Note 1: Setting the "forced VTR power supply ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 02 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
   Hereafter, VTR operations cannot be performed even if the cabinet (R) is removed using the above steps.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode".

Note 2: Setting the "forced camera+VTR power supply ON mode" (camera mode)

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
   Hereafter, VTR operations can be performed even if the cabinet (R) is removed using the above steps.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode".

Note 3: Exiting the "forced power supply ON mode"

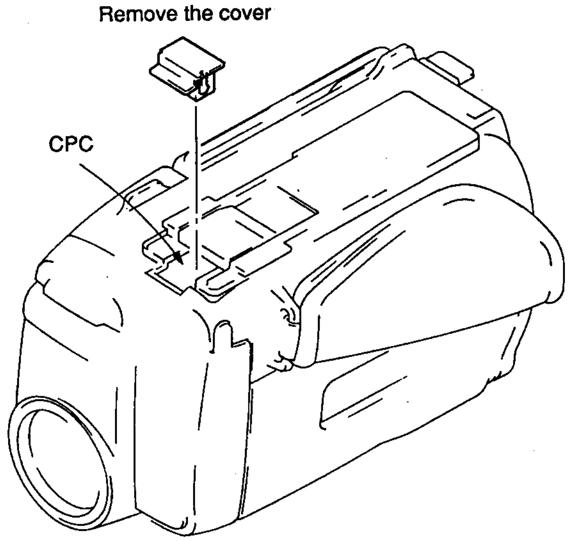
1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 01.

3-1-3. Connector for Adjustments

Some of the video section adjusting points are concentrated in the CPC of the FP-379 flexible board. Connect the measuring instruments via the CPC-5 jig (J-6082-351-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

Table 6-3-1.



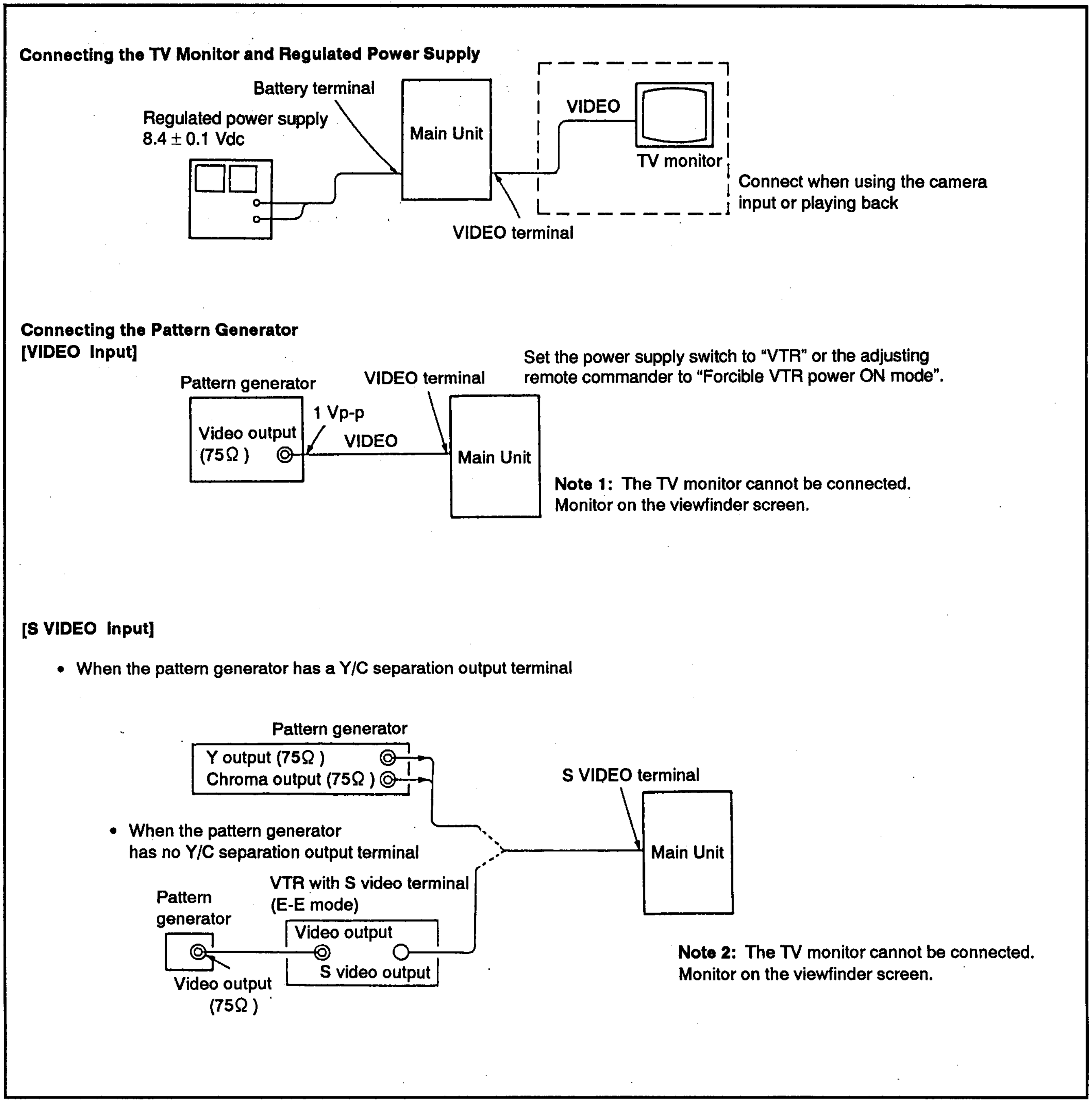
3-1-4. Connecting the Equipments

Connect the measuring instruments as shown in Fig. 6-3-1 according to the input terminal specifications (VIDEO input or S VIDEO input), and perform the adjustments.

The input terminal is specified in the ( ) in the signal column. Either input terminal can be used when there are no specifications.

Note 1: If the VIDEO input is used for adjustments which specify for the S VIDEO input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications.

Note 2: When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by the VTR. It is recommended that a pattern generator with a Y/C separation output terminal be used as much as possible.


Connecting the TV Monitor and Regulated Power Supply

Battery terminal
Regulated power supply
8.4 ± 0.1 Vdc
Main Unit
VIDEO
TV monitor
VIDEO terminal

Connect when using the camera input or playing back

Connecting the Pattern Generator
[VIDEO Input]

Pattern generator
Video output
(75Ω)
1 Vp-p
VIDEO
VIDEO terminal
Main Unit

Set the power supply switch to "VTR" or the adjusting remote commander to "Forcible VTR power ON mode".

Note 1: The TV monitor cannot be connected. Monitor on the viewfinder screen.

[S VIDEO Input]

- When the pattern generator has a Y/C separation output terminal

Pattern generator
Y output (75Ω)
Chroma output (75Ω)
S VIDEO terminal
Main Unit

- When the pattern generator has no Y/C separation output terminal

VTR with S video terminal
(E-E mode)
Pattern
generator
Video output
S video output
Video output
(75Ω)

Note 2: The TV monitor cannot be connected. Monitor on the viewfinder screen.

Fig. 6-3-1.

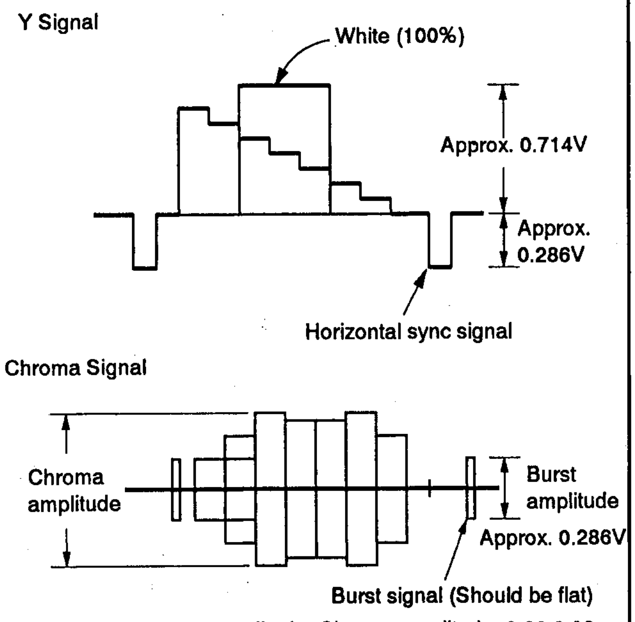
3-1-5. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. CAMERA input

Connect the oscilloscope to the Y signal terminal of the S VIDEO terminal, and check that the sync signal of the Y signal is approximately 0.286V and that the amplitude of the video section is approximately 0.714V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.286V and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30 : 0.66. The Y and chroma signals used in the adjustment are shown in Fig. 6-3-2.

Note: Be sure to check in the recording mode.


Y Signal
White (100%)
Approx. 0.714V
Approx. 0.286V
Horizontal sync signal
Chroma Signal
Chroma amplitude
Burst amplitude
Approx. 0.286V
Burst signal (Should be flat)

Burst amplitude: Chroma amplitude=0.30:0.66

Fig. 6-3-2. Color bar signal of pattern generator

2. VIDEO input

Connect the oscilloscope to the VIDEO terminal, and check that the sync signal amplitude of the video signal is approximately 0.286V, the amplitude of the video section is approximately 0.714V, the amplitude of the burst signal is approximately 0.286V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30 : 0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 6-3-3.

Note: Be sure to check in the record mode.

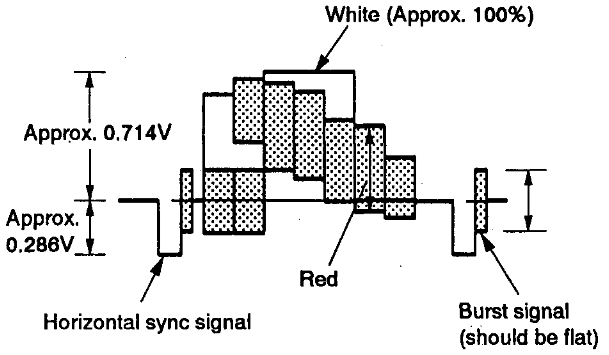

White (Approx. 100%)
Approx. 0.714V
Approx. 0.286V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 6-3-3. Color Bar Signal of Pattern Generator

3-1-6. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

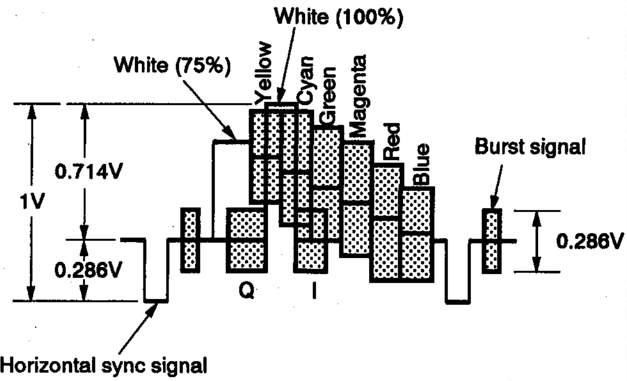
Name	Record-ing mode	Tape type	Tape speed	Usage
Tracking WR5-1NP	Standard 8 mm	MP	SP	Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7NE	Hi8	ME	SP	Frequency characteristics adjustment
Operation check WR5-5NSP	Standard 8 mm	MP	SP	Checking operations
Operation check WR5-8NSE	Hi8	ME	SP	
Operation check (LP mode) WR5-4NL	Standard 8 mm	MP	LP	
Operation check (LP mode) WR5-8NLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9NS	Standard 8 mm	MP	SP	AFM stereo Checking operations
BPF adjustment WR5-11NS	Standard 8 mm	MP	SP	BPF adjustment

Tape type
- MP.... Particle type metal tape
- ME ... Evaporated type metal tape

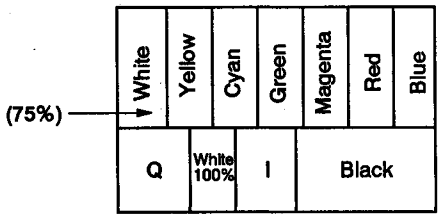
Table 6-3-2.

Fig. 6-3-4. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75 Ω)


White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
0.714V
1V
0.286V
0.286V
Q
I
Horizontal sync signal

Color bar signal waveform


(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
White 100%
I
Black

Color Bar Pattern

Fig. 6-3-4. Color Bar Signals of the Alignment Tape

3-1-7. Input/Output Level and Impedance

Video input/output
Phono jack, 1 Vp-p, 75Ω,
unbalanced, sync negative
S video input/output (CCD-TR910)
4-pin mini DIN
Luminance signal:
1Vp-p, 75Ω, unbalanced, sync negative
Chrominance signal:
0.286Vp-p 75Ω, unbalanced
Audio input/output
Phono jack,
Input: –7.5 dBs, input impedance more than 47 kΩ
Output: –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

3-1-8. Recording Mode (Standard 8/Hi8) switching (CCD-TR910)

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automaticaly according to the recording mode of the tape played back.

Tape Used	Recording Mode
ME	Hi8
Hi8 MP	
MP	Standard 8

3-1-9. Service Mode

Additional note on adjustment

Note: After the completion of the all adjustments, cancell the service mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 or page: 3 is changed, return the data to the original condition.

1. Test mode setting

Set/release each test mode. Set data: 01 to page: 0, address: 01 before setting the data of page D.

Page F	Address 29

Data	Function
00	Normal
01	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera+VTR power ON

* For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (8.4 Vdc).

* Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander. And set data: 00 to page: 0, address: 01.

2. Emergency Memory Address

Page F	Address 10 to 1B

Address	Contents
10	1st EMG code
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency.

The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency.

Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note 1: Be sure to rewrite the data of addresses 10 to 1B to 00 after repairs/adjustments.

Note 2: When rewriting the data, be sure to press the PAUSE buttton of the remote commander after setting the data.

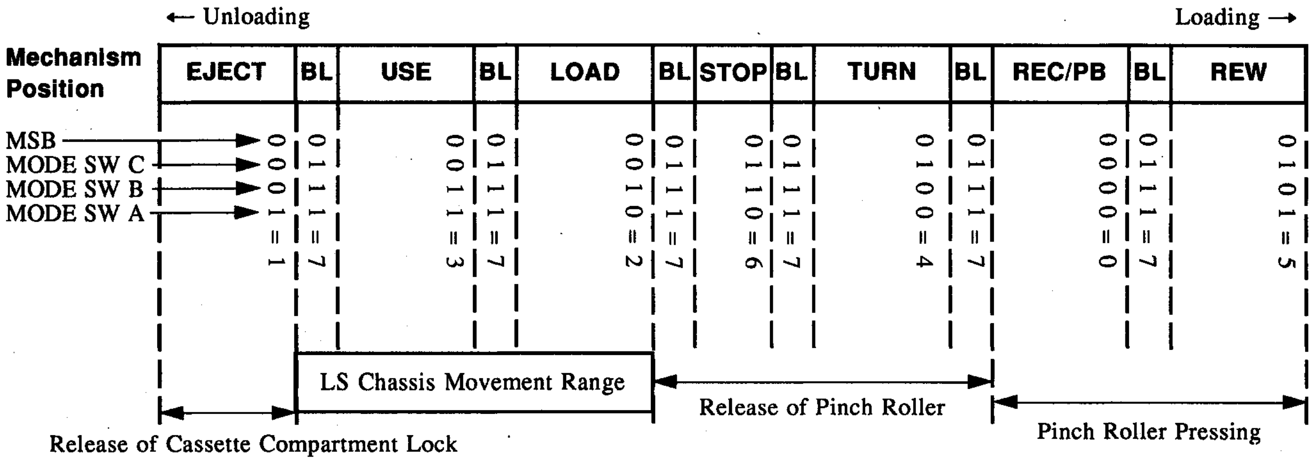
2-1. EMG CODE (Emergency Code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW Codes

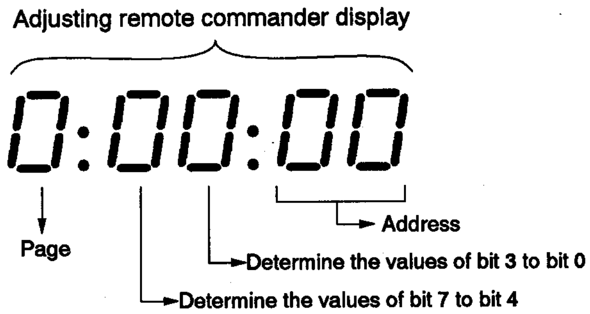
- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.


← Unloading
Loading →
Mechanism Position
EJECT
BL
USE
BL
LOAD
BL
STOP
BL
TURN
BL
REC/PB
BL
REW
MSB
MODE SW C
MODE SW B
MODE SW A
0001 = 1
0111 = 7
0011 = 3
0111 = 7
0010 = 2
0111 = 7
0110 = 6
0111 = 7
0100 = 4
0111 = 7
0000 = 0
0111 = 7
0101 = 5
LS Chassis Movement Range
Release of Pinch Roller
Pinch Roller Pressing
Release of Cassette Compartment Lock

Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
RECP/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW is carried at this position. The mechanism will not move any further in the loading direction.

3. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is “1” or “0”.


Adjusting remote commander display
0:00:00
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote controller display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ→	E (E)	1	1	1	0
	F (F)	1	1	1	1

(Example) If the remote commander display data is “8E”, bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

4. Input/output selection check

Page 3	Address 16

Bit	Function	When bit value = 1	When bit value = 0
0	Not S video terminal input		S video terminal input
1	Not video terminal input		Video terminal input
2	Audio terminal monaural	Monaural	
3	Easy connector monaural input	Monaural	
4			
5			
6			
7			

Using method:

1) Select address: 16 of page: 3.
2) By discriminating the bit value of the display data, the state of the input/output selection can be discriminated.

5. Condensation, head clogging check

Page 3	Address 17

Bit	Function	When bit value = 1	When bit value = 0
0	Condensation state (1 hour preservation)	Condensation	
1	Head clogging	Head clogging	
2			
3			
4			
5			
6			
7			

Using method:
1) Select address: 17 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

6. VTR state check (1)

Page 3	Address 18

Bit	Function	When bit value = 1	When bit value = 0
0	Video/audio circuit PB mode	PB mode	REC/E-E mode
1			
2			
3			
4	Head clog detection when REC	Head clog	
5			
6	Recorded tape playback	Playback	
7	Capstan rotation	Rotation	

Using method:
1) Select address: 18 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

7. VTR state check (2)

Page 3	Address 19

Bit	Function	When bit value = 1	When bit value = 0
0	Eject state	Eject state	
1	Cassette insertion state	Cassette in	
2	Cassette accidental erasure prevention	Accidental erasure prevention state	
3	Tape type	ME	MP
4	Tape type	Hi8 MP	NORMAL MP, ME
5	Crystal variable speed playback	Variable speed playback	
6	Variable speed playback mode	Variable speed playback mode	
7	DRUM	DRUM rotation	Stop

Using method:
1) Select address: 19 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

8. VTR state check (3)

Page 3	Address 1A

Bit	Function	When bit value = 1	When bit value = 0
0	Playback tape recording mode	Hi8	NORMAL
1			
2	Audio mode	Monaural	Stereo
3			
4			
5			
6			
7			

Using method:
1) Select address: 1A of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

9. Record of Use Check

Page 3	Address E0 to E9

Address	Function		Remarks
E0	Service status		For checking reset. Normal = "FF". Reset: "00"
E1	Drum rotation counted time (BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
E2		Hour (L)	
E3		Minute	10th place digit and 1st place digit of counted time (decimal)
E4	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
E5		Month	
E6		Day	
E7	Final condensation occurrence date (BCD code)	Year	
E8		Month	
E9		Day	

Using method:
1) The record of use data is displayed at addresses: E0 to EA of page 3.

Note: This data will be erased when the coin lithium battery is removed (reset).

3-1-10. Page D Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page D Data Initialization" and "Page D Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Note 3: ( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model
< >: US, E, Hong Kong, Tourist model
{ }: Canadian model

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
10	00	00	←
11	(02)[03]	02	←
12	6E	06	←
13	06	06	←
14	17	17	←
15	F2	02	←
16	00	00	←
17	<0C>{04}	04	←
18	00	0C	←
19	16	16	←
1A	37	37	←
1B	15	11	←
1C	19	19	←
1D	00	00	
1E	00	00	
1F	10	10	←
20	00	00	
21	(30)[60]	30	←
22	09	07	←
23	10	10	←
24	12	12	
25	64	64	
26	04	04	
27	F9	F9	
28	80	80	
29	85	85	
2A	91	91	
2B	A0	A0	
2C	A8	A8	
2D	05	05	←
2E	03	03	←
2F	01	01	←
30	05	05	←

Table 6-3-3 (1).

Address	Adjustment Data		
	Initial Value		Memo Column
	CCD-TR910	CCD-TR710	
31	73	73	←
32	24	24	←
33	CC	CC	←
34	07	07	←
35	80	80	
36	B8	B8	←
37	02	02	←
38	02	02	←
39	00	00	←
3A	00	00	
3B	00	00	
3C	08	08	←
3D	80	80	←
3E	00	00	
3F	04	04	←
40	38	38	
41	00	00	
42	20	20	
43	20	20	
44	82	82	
45	00	00	
46	88	88	
47	73	73	
48	A3	A3	
49	A6	A6	
4A	AD	AD	
4B	6F	6F	
4C	93	93	
4D	93	93	
4E	B0	B0	
4F	B4	B4	
50	48	48	
51	40	40	
52 to 63			

Table 6-3-3 (2).

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initialization of E, F Page Data

If the E, F page data is erased due to some reason, perform "Initialization of E, F Page Data", "Modification of F Page Data", and "Modification of E Page Data" of camera system adjustments.

2. Initialization of D Page Data

Note: If the D page data has been initialized, perform "Color Electronic Viewfinder System Adjustment" and "Battery Down Adjustment" again.

Adjusting page	D
Adjusting address	10 to 63

Initialization method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 2D to page: 3, address: 00.
3) Set data: 2D to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 3, address: 02 is 01.
5) Set data: 29 to page: 3, address: 00.
6) Set data: 29 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Set data: 00 to page: 0, address: 01.
8) After performing "Modification of D Page Data", perform "Color Electronic Viewfinder System Adjustment" and "Battery Down Adjustment" again.

3. Modification of D Page Data

If the D page data has been initialized, change the data as shown in the following table by manual input.

Note 1: Before changing the data, set data: 01 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01, and perform "Color Electronic Viewfinder System Adjustment" and "Battery Down Adjustment".

( ): US, Cnadian model
[ ]: E, Hong Kong, Tourist model
< >: US, E, Hong Kong, Tourist model
{ }: Cnadian model

Address	CCD-TR910	CCD-TR710
10	00	00
11	(02)[03]	02
12	6E	06
13	06	06
14	17	17
15	F2	02
16	00	00
17	<0C>{04}	04
18	00	0C
19	16	16
1A	37	37
1B	15	11
1C	19	19
1F	10	10
21	(30)[60]	30
22	09	07
23	10	10
24	12	12
25	64	64
26	04	04
27	F9	F9
2D	05	05
2E	03	03
2F	01	01
30	05	05
31	73	73
32	24	24
33	CC	CC
34	07	07
36	B8	B8
37	02	02
38	02	02
39	00	00
3C	08	08
3D	80	80

4. Battery End Adjustment (VC-177 board)

Set the battery end voltage.
If the voltage is incorrect, the life of the battery will shorten.
The image at the battery end will also be rough.

Mode	Camera record
Signal	Arbitrary
Measurement Point	LCD display of the adjusting remote control unit
Measuring Instrument	
Adjustment Page	D
Specified Value	28 to 2C, 35

Note: The lens block and cabinet (R) must be connected.

Switch setting
1) AUTO FOCUS .... OFF
2) VF PW-SAVE (Menu display) .... OFF

Connection:
1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 6-3-5.

Adjusting method:
1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.1 ± 0.1 Vdc.
2) Load a cassette, and set to the camera recording mode.
3) Set data: 01 to page: 0, address: 01.
4) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 5.40 ± 0.01 Vdc.
5) Set data: 03 to page: 0, address: FF.
6) Set data: 01 to page: 2, address: 01.
7) Select page: 3, address: 31, read the adjusting remote commander display data, and this data is named Dref.
8) Set data: 00 to page: 2, address: 01.
9) Set data: 00 to page: 0, address: FF.
10) Set data Dref to page: D, address: 28, and press the PAUSE button of the adjusting remote commander.
11) Set data Dref to page: D, address: 35, and press the PAUSE button of the adjusting remote commander.
12) Convert Dref to decimal notation, and obtain Dref′. (Refer to Table 6-1-4. "Hexadecimal notation – decimal notation conversion table")
13) Calculate D29′, D2A′, D2B′ and D2C′ using following equations (decimal notation calculation).
D29′ = Dref′+5
D2A′ = Dref′+32
D2B′ = Dref′+53
D2C′ = Dref′+64
14) Convert D29′, D2A′, D2B′ and D2C′ to hexadecimal notation, and obtain D29, D2A, D2B and D2C.
15) Set data: D29 to page: D, address: 29, and press the PAUSE button of the adjusting remote commander.
16) Set data: D2A to page: D, address: 2A, and press the PAUSE button.
17) Set data: D2B to page: D, address: 2B, and press the PAUSE button.
18) Set data: D2C to page: D, address: 2C, and press the PAUSE button.
19) Set data: 00 to page: 0, address: 01.

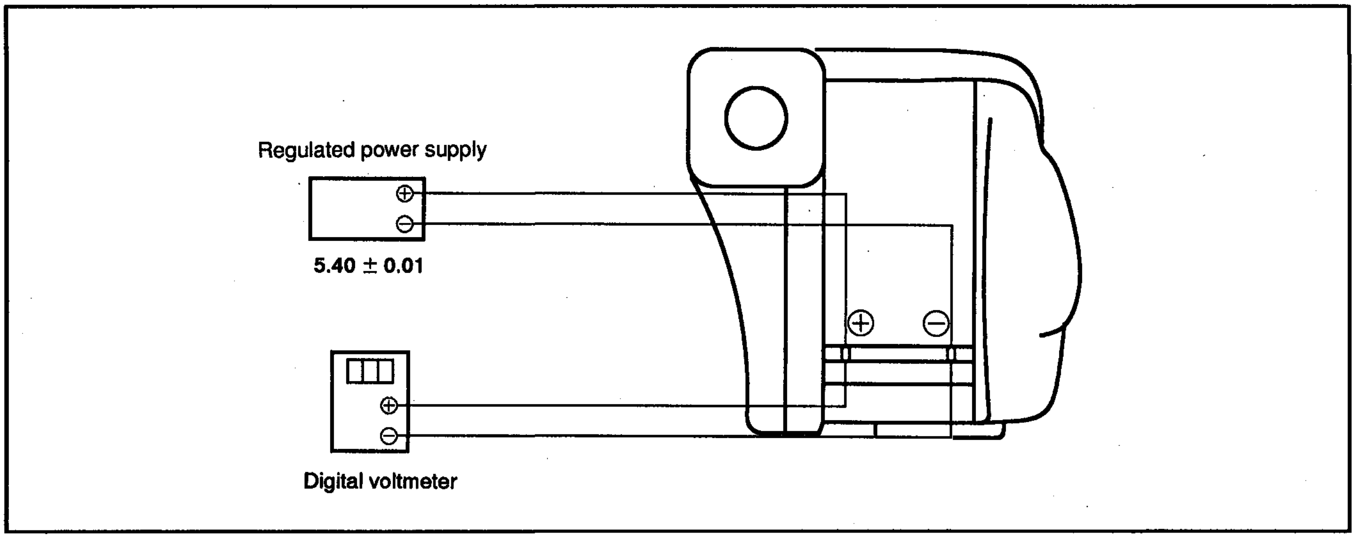


Fig. 6-3-5.

3-3. SERVO SYSTEM ADJUSTMENTS

1. CAP FG Offset Adjustment (VC-177 board)

Improve the capstan servo characteristic. If it is not correct, jitters will increase.

Mode	VTR record (SP mode)
Signal	Arbitrary
Measurement Point	Pin ③ of CPC (CAP FG) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5C
Specified Value	Duty = 50 ± 1.5%

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 81 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the data of page: 2, address: 02 is 01.
4) Check that Duty of CAP FG signal satisfies the specified value. If not, set data: 00 to page: 2, address: 01, and press the PAUSE button, and then, repeat steps 2) to 4).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

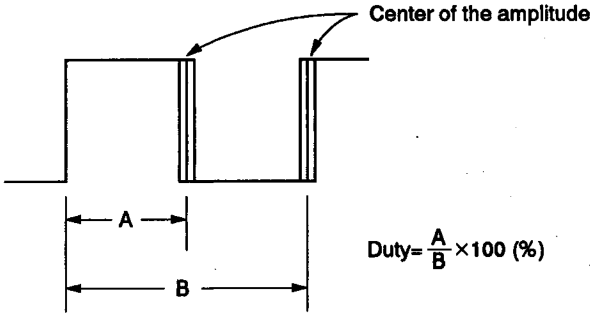


Fig. 6-3-6.

2. Switching Position Adjustment (VC-177 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1NP)
Measurement Point	CH1: Pin ④ of CPC (RF SWP) on FP-379 flexible board CH2: Pin ⑨ of CPC (PB RF) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	36, 37
Specified Value	$t_1 = 0 \pm 10$ μsec

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 37 and minimize "t_1", and press the PAUSE button of the adjusting remote commander. (Coarse adjustment)
3) Change the data of page: F, address: 36, and adjust so that the switching position (t_1) becomes the specified value. (Fine adjustment)
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 0, address: 01.

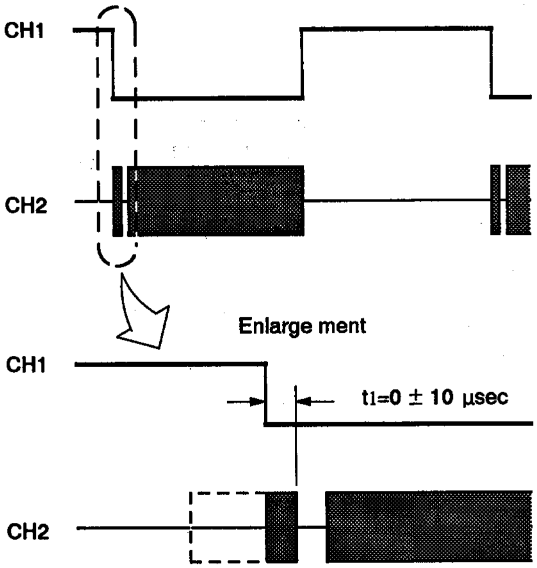


Fig. 6-3-7.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

1. 28 MHz origin oscillation adjustment
2. Filter f0 adjustment
3. Y OUT level adjustment
4. C OUT level adjustment
5. RP filter f0 adjustment
6. AFC f0 adjustment
7. REC Y current adjustment
8. REC C current adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-177 board)

Set the frequency of the clock for synchronization.

If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Pin ⑫ of IC202
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	3A
Specified Value	f = 14318181 ± 71 Hz

Note: If the x2 frequency is displayed, insert a 1 kΩ resistor between the measuring point and probe.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 3A, and set the oscillation frequency to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

2. Filter f0 Adjustment (VC-177 board)

Minimize the chroma signal residual components during composite video signal input.

Mode	VTR stop
Signal	Color bar (Video input)
Measurement Point	Pin ⑬ of CPC (EZ I/O) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	66
Specified Value	Minimum residual chroma signal components

Note: Do not insert a plug into the S video terminal. (CCD-TR910)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 33 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 66, and minimize the residual chroma signal components (A).
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

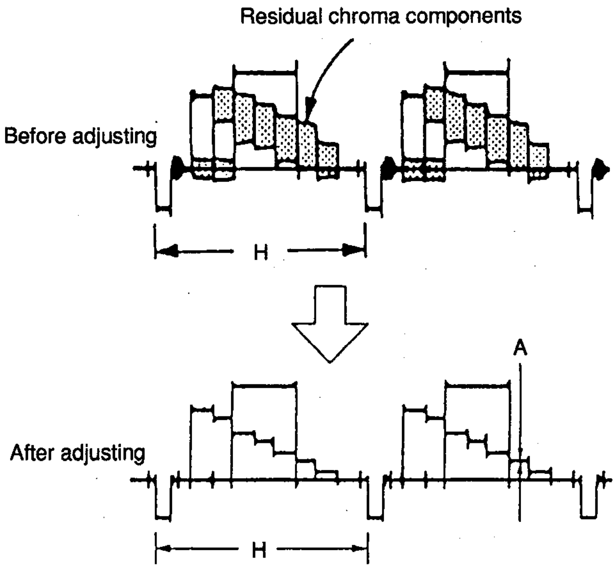


Fig. 6-3-8.

3. Y OUT Level Adjustment (VC-177 board)

Set the Y signal output level.

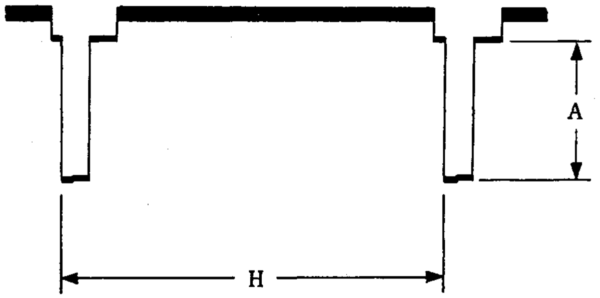
Mode	Camera E-E
Subject	Arbitrary
Measurement Point	CCD-TR910: Y signal terminal of S VIDEO terminal (75Ω terminated) CCD-TR710: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	62
Specified Value	A = 286 ± 5 mV

Note: Insert the plug into the S video terminal. (CCD-TR910)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 62, and set the SYNC level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

CCD-TR910



CCD-TR710

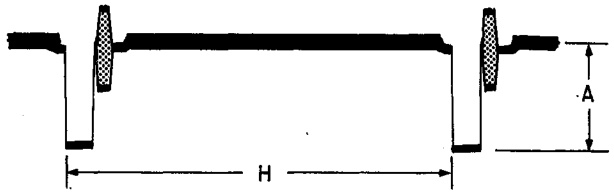


Fig. 6-3-9.

4. C OUT Level Adjustment (VC-177 board)

Set the chroma signal output level.

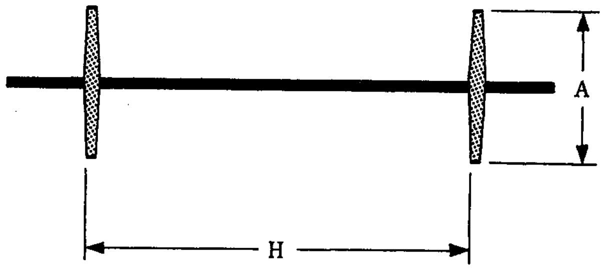
Mode	Camera E-E
Subject	Arbitrary
Measurement Point	CCD-TR910: Chroma signal terminal of S VIDEO terminal (75Ω terminated) CCD-TR710: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64
Specified Value	A = 286 ± 5 mV

Note: Insert the plug into the S video terminal. (CCD-TR910)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 64, and set the burst level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

CCD-TR910



CCD-TR710

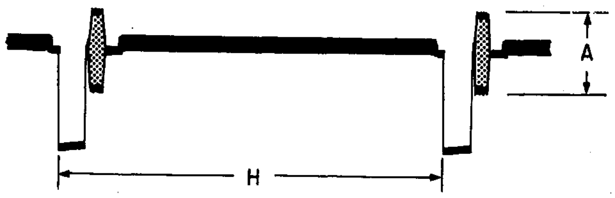


Fig. 6-3-10.

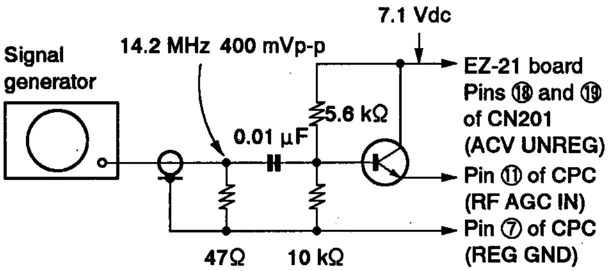
5. RP Filter f0 Adjustment (VC-177 board)

Adjust the LPF of the playback RF amplifier.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Pin ⑭ of CPC of FP-379 flexible board (RF AGC OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	67
Specified Value	A = Below 10 mVp-p

Connection:

1) Input a 14.2 MHz, 400 mVp-p CW signal to Pin ⑪ of CPC of the FP-379 flexible board (RF AGC IN).



Transistor: General NPN transistor (2SC403, etc.)

47 Ω resistor:	1-249-401-11
5.6 kΩ resistor:	1-249-426-11
10 kΩ resistor:	1-249-429-11
0.01 µF capacitor:	1-101-004-00

Fig. 6-3-11.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 35 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 0E to page: D, address: 12 only for CCD-TR710, and press the PAUSE button of the adjusting remote commander.
4) Change the data of page: F, address: 67, and minimize the 14.2 MHz signal level (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 06 to page: D, address: 12 only for CCD-TR710, and press the PAUSE button of the adjusting remote commander.
7) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
8) Set data: 00 to page: 0, address: 01.

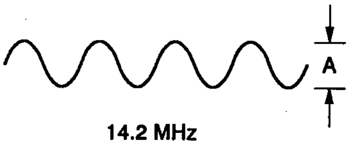


Fig. 6-3-12.

6. AFC f0 Adjustment (VC-177 board)

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	Color bar (Video input)
Measurement Point	Pin ⑫ of CPC of FP-379 flexible board (AFC fo)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	63
Specified Value	A = 2.2 ± 0.05 Vdc

Note: Do not insert the plug in the S video terminal. (CCD-TR910)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 31 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 63, and set the DC voltage (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

7. Hi8 REC Y Current Adjustment (VC-177 Board) (CCD-TR910)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑥ of CPC of FP-379 flexible board (REC RF)
Measuring Instrument	Oscilloscope (20 MHz band limitation: OFF)
Adjustment Page	F
Adjustment Address	70, 71, 72, 73, 74, 75
Specified Value	A = 215 ± 5 mV

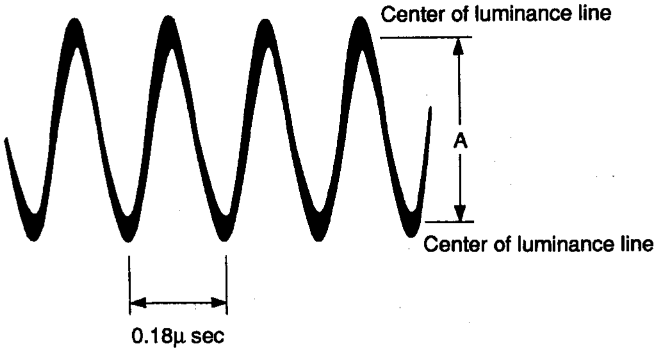


Fig. 6-3-13.

Adjusting method:

1) Insert a Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Note down the data of page: F, address: 76, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Note down the data of page: F, address: 77, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Input data: 00 to page: F, addresses: 70, 72, 73.
   Note: After setting the data, be sure to press the PAUSE button of the adjusting remote commander.
6) Change the data of page: F, address: 71, and set the REC Y signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read the data (D_{71}) of page: F, address: 71.
9) Input the read data (D_{71}) to page: F, addresses: 70, 72, and 73.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) Convert D_{71} to a decimal number to obtain D_{71}'.
    (Refer to Table 6-1-4. Hexadecimal-Decimal Conversion Table).
11) Calculate the adjustment data (decimal) from the following equation, convert it to a hexadecimal number, and input to each adjustment address.
    Address: 74 $D_{74}' = D_{71}' + 9$
    Address: 75 $D_{75}' = D_{71}' + 24$
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
12) After setting the data noted down at step 3) for page: F, address: 76, press the PAUSE button of the adjusting remote commander.
13) After setting the data noted down at step 4) for page; F, address: 77, press the PAUSE button of the adjusting remote commander.
14) Set data: 00 to page: 0, address: 01.

8. Standard 8 REC Y Current Adjustment (VC-177 Board) (CCD-TR710)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑥ of CPC of FP-379 board flexible (REC RF)
Measuring Instrument	Oscilloscope (20 MHz band limitation: OFF)
Adjustment Page	F
Adjustment Address	75
Specified Value	A = 230 ± 5 mV

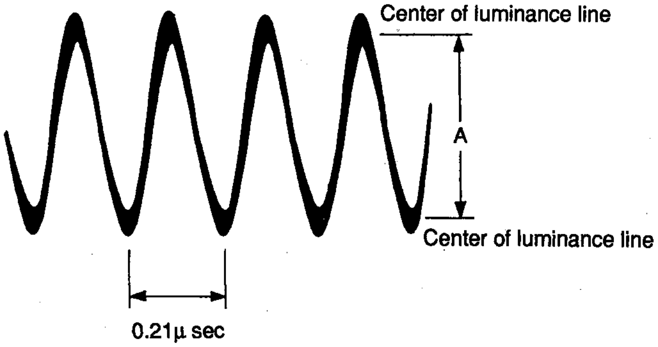


Fig. 6-3-14.

Adjusting method:

1) Insert a Standard 8 MP tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Note down the data of page: F and address: 7A, then set data: 00 and press the PAUSE button of the adjusting remote commander.
4) Note down the data of page: F and address: 7B, then set data: 00 and press the PAUSE button of the adjusting remote commander.
5) Change the data of page: F, address: 75, and set the REC Y signal level (A) to the specified value.
6) Press the PAUSE button of the adjusting remote commander.
7) After setting the data noted at step 3) for page: F, address: 7A, and press the PAUSE button of the adjusting remote commander.
8) After setting the data noted at step 4) for page: F, address: 7B, and press the PAUSE button of the adjusting remote commander.
9) Set data: 00 to page: 0, address: 01.

9. Hi8 REC C Current Adjustment (VC-177 Board) (CCD-TR910)

Adjust REC chroma signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	CH1: Pin ⑥ of CPC of FP-379 board (REC RF) CH2: Pin ④ of CPC of FP-379 board (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	76 to 7F
Specified Value	A = 47.0 ± 1.6 mV

Connection:

1) Short-circuit R1157 (82Ω, near Pin ㉒ of IC102) using a jumper wire.
2) Short-circuit R1018 (6.8 kΩ) using a jumper wire.
3) Short-circuit R1113 (3.3 kΩ) using a jumper wire.

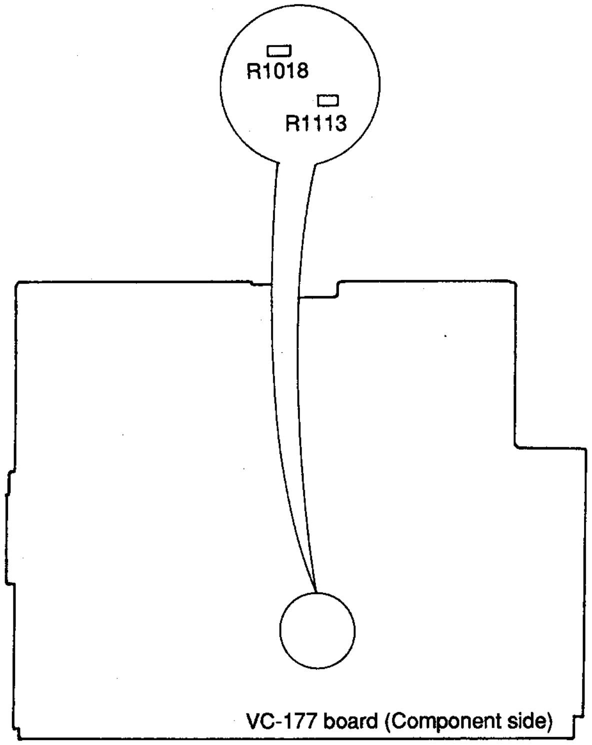


Fig. 6-3-15.

Adjusting method:

1) Insert a normal Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 30 to page: 2, address: 61.
4) Note down the data of page: F and address: 70, then set data: 00 and press the PAUSE button of the adjusting remote commander.
5) Note down the data of page: F and addresses: 71, 72, 73, then input data: 00 to each address.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
6) Change the data of page: F, address: 77, and set the REC chroma signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read data (D77) of page: F, address: 77.
9) Input the read data (D77) to addresses: 76, 78, 79 of page: F.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) Convert D77 to a decimal number, to obtain D77′.
    (Refer to Table 6-1-4. Hexadecimal-Decimal Conversion Table).
11) Calculate the adjustment data (decimal) from the following equation (decimal calculation), convert it to a hexadecimal number, and input to each adjustment address.
    Address: 7A D7A′ = D77′ – 31
    Address: 7B D7B′ = D77′ – 31
    Address: 7C D7C′ = D77′ – 31
    Address: 7D D7D′ = D77′ – 31
    Address: 7E D7E′ = D77′ – 39
    Address: 7F D7F′ = D77′ – 60
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
12) After setting the data noted down at step 4) for page: F, address: 70, press the PAUSE button of the adjusting remote commander.
13) After setting the data noted down at step 5) for page: F, address: 71, 72, 73, press the PAUSE button of the adjusting remote commander.
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
14) Set data: 00 to page: 2, address: 61.
15) Set data: 00 to page: 0, address: 01.

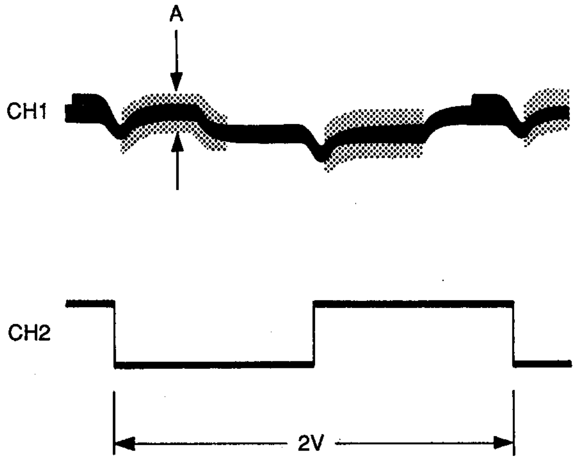


Fig. 6-3-16.

10. Standard 8 REC C Current Adjustment (CCD-TR710)

Adjust REC chroma signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	CH1: Pin ⑧ of CPC of FP-379 board (REC RF) CH2: Pin ④ of CPC of FP-379 board (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	7E, 7F
Specified Value	A = 42.3 ± 1.6 mV

Connection:

1) Short-circuit R1157 (82Ω, near Pin ㉒ of IC102) using a jumper wire.
2) Short-circuit R1018 (6.8 kΩ) using a jumper wire.
3) Short-circuit R1113 (3.3 kΩ) using a jumper wire.

Adjusting method:

1) Insert a Standard 8 MP tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 30 to page: 2, address: 61.
4) Note down the data of page: F, address: 75, set data: 20, and press the PAUSE button of the adjusting remote commander.
5) Change the data of page: F, address: 7E, and set the REC chroma signal level (A) to the specified value.
6) Press the PAUSE button of the adjusting remote commander.
7) Read data (D7E) of page: F, address: 7E.
8) Convert the D7E to a decimal number, and obtain D7E′. (Refer to Table 6-1-4. Hexadecimal-Decimal Conversion Table).
9) Calculate the adjustment data (decimal) from the following equation (decimal calculation), convert it to a hexadecimal number, and input to each adjustment address.

   Address: 7F D7F′ = D7E′ − 51

   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) After setting the data noted down at step 4 for page: F, address: 75, press the PAUSE button of the adjusting remote commander.
11) Set data: 00 to page: 2, address: 61.
12) Set data: 00 to page: 0, address: 01.

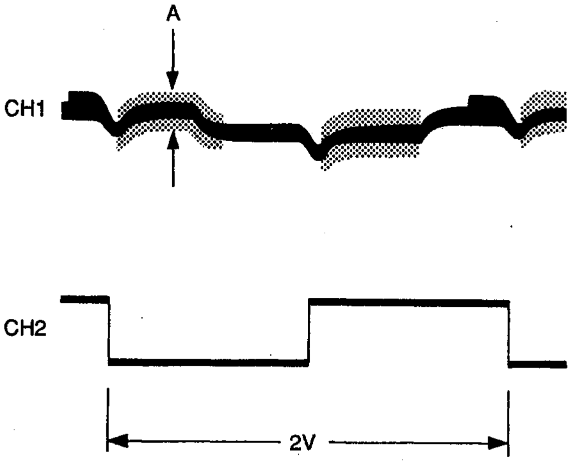


Fig. 6-3-17.

3-5. AUDIO SYSTEM ADJUSTMENT

- Perform the adjustment using the color bar signal as a video signal input for VIDEO terminal.
- The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.
- Set the Hi-Fi sound switch in the menu display to "STEREO" position unless specified otherwise.

Note:

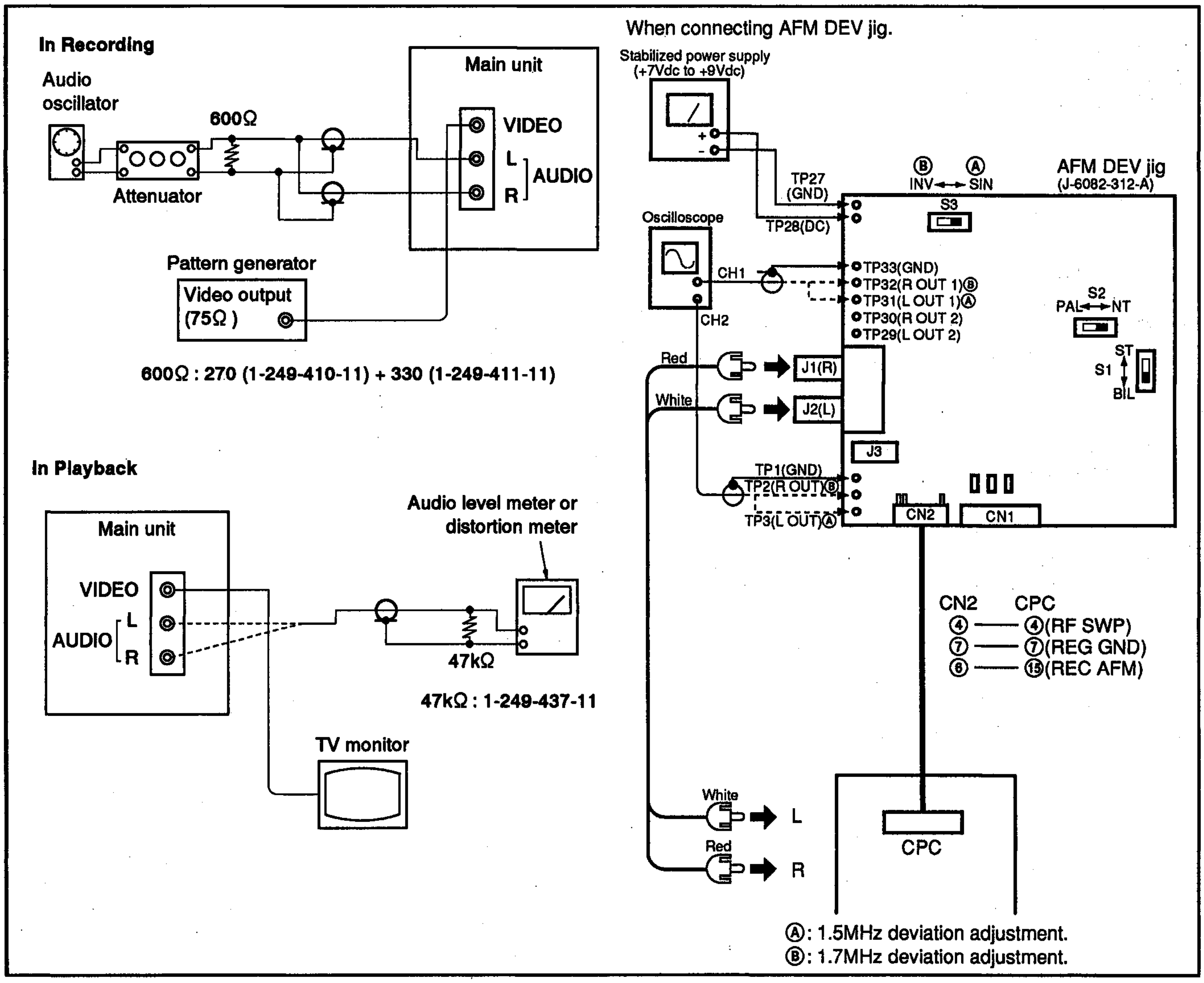
1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.
2) Be sure to insert the plug (Shorting plug or dummy plug, etc) into the AUDIO terminal (Right). If the plug is not inserted, the monaural mode well be set, and correct adjustments can not be carried out.
   [Monaural mode]
   During recording .... REC AFM RF 1.7MHz carriear will not be output.
   During playback .... The L+R signal will be output from the AUDIO terminal (Left).

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-18, and perform adjustments at the power switch [VTR] position.

[Adjustment Procedure]

1) 1.5 MHz deviation adjustment
2) 1.7 MHz deviation adjustment
3) BPF adjustment


In Recording
Audio oscillator
600Ω
Attenuator
Main unit
VIDEO
L
R
AUDIO
Pattern generator
Video output (75Ω)
600Ω : 270 (1-249-410-11) + 330 (1-249-411-11)
In Playback
Main unit
VIDEO
AUDIO
L
R
Audio level meter or distortion meter
47kΩ
47kΩ : 1-249-437-11
TV monitor
When connecting AFM DEV jig.
Stabilized power supply (+7Vdc to +9Vdc)
+
-
TP27 (GND)
TP28(DC)
Oscilloscope
CH1
CH2
Ⓑ Ⓐ
INV◄–►SIN
S3
AFM DEV jig (J-6082-312-A)
TP33(GND)
TP32(R OUT 1)Ⓑ
TP31(L OUT 1)Ⓐ
TP30(R OUT 2)
TP29(L OUT 2)
S2
PAL◄–►NT
ST
S1
BIL
Red
J1(R)
White
J2(L)
J3
TP1(GND)
TP2(R OUT)Ⓑ
TP3(L OUT)Ⓐ
CN2
CN1
CN2 CPC
④ —— ④(RF SWP)
⑦ —— ⑦(REG GND)
⑥ —— ⑮(REC AFM)
White
L
Red
R
CPC

Ⓐ: 1.5MHz deviation adjustment.
Ⓑ: 1.7MHz deviation adjustment.

Fig. 6-3-18.

1. 1.5 MHz Deviation Adjustment

Sets the spectrum of the L-ch (L+R/2 signal) level modulated during recording. If deviated, the crosstalk of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the right and left audio input terminals (Note 1)
Measuring point	CH1: AFM DEV jig TP31 CH2: AFM DEV jig TP3
Measuring device	Oscilloscope ADD mode CH2 INV mode
Adjustment page	F
Adjustment address	5E
Specified value	The difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect CN2 of the AFM DEV jig to CPC of the FP-379 flexible board.
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7 Vdc to +9 Vdc).
4) Set the AFM DEV jig switches to the following positions.
   S1 ....BIL position
   S2 ....NT position
   S3 ....SIN position

Adjustment Method:

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (inverse) mode.
3) Set data: 01 to page: 0, address: 01.
4) Change the data of page: F, address: 5E and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

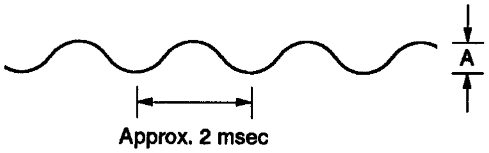


Fig. 6-3-19.

2. 1.7 MHz Deviation Adjustment

Sets the spectrum of the R-ch (L–R/2 signal) level modulated during recording. If deviated, the crosstalk of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the right and left audio input terminals
Measuring point	CH1: AFM DEV jig TP32 CH2: AFM DEV jig TP2
Measuring device	Oscilloscope ADD mode CH2 INV mode
Adjustment page	F
Adjustment address	5F
Specified value	The difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect CN2 of the AFM DEV jig to CPC of the FP-379 flexible board.
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7 to +9 Vdc).
4) Set the AFM DEV jig switches to the following positions.
   S1 ....BIL position
   S2 ....NT position
   S3 ....INV position

Adjustment Method:

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (inverse) mode.
3) Set data: 01 to page: 0, address: 01.
4) Change the data of page: F, address: 5F and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

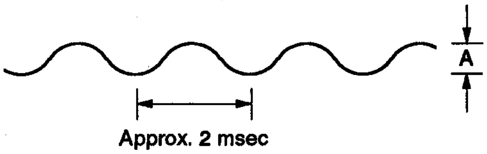


Fig. 6-3-20.

3. BPF f0 Adjustment

Sets the BPF passing frequency so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

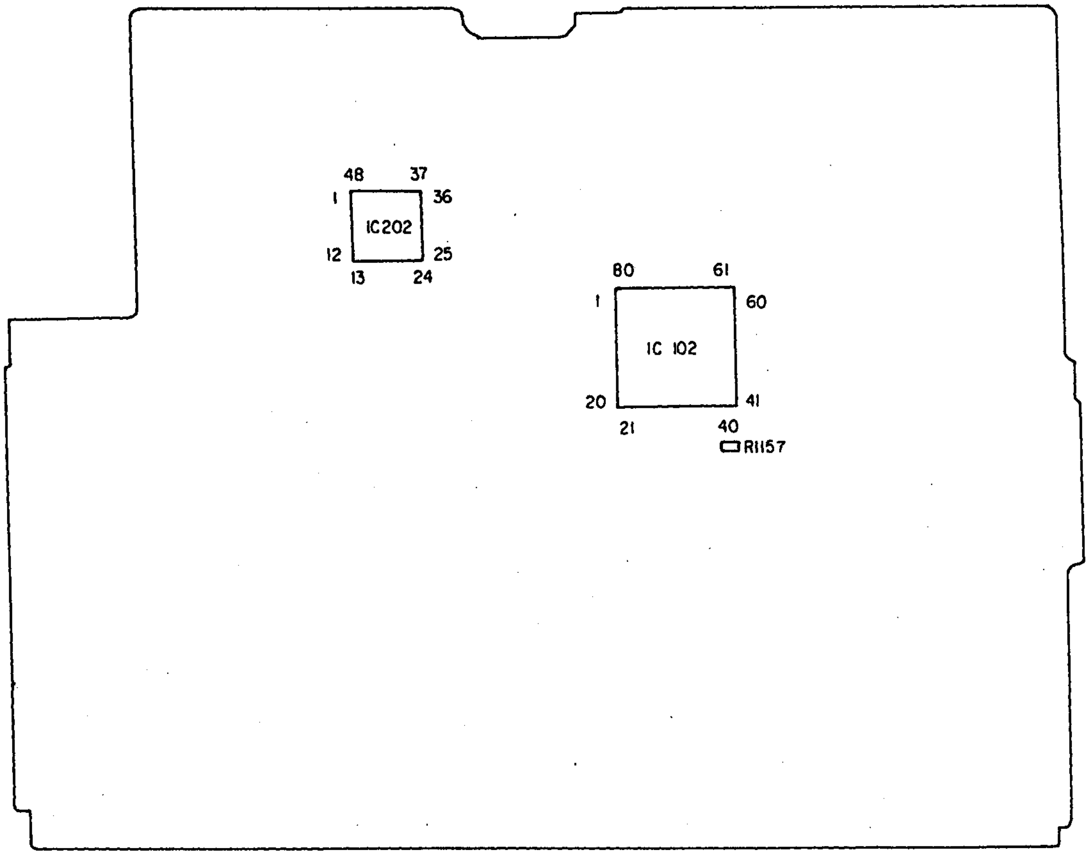
Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11NS)
Measuring point	Right or left audio output terminal
Measuring device	Distortion meter
Adjustment page	F
Adjustment address	60
Specified value	The right and left channel distortion rates should be almost the same (within ± 1%) and minimum

Adjustment Method:

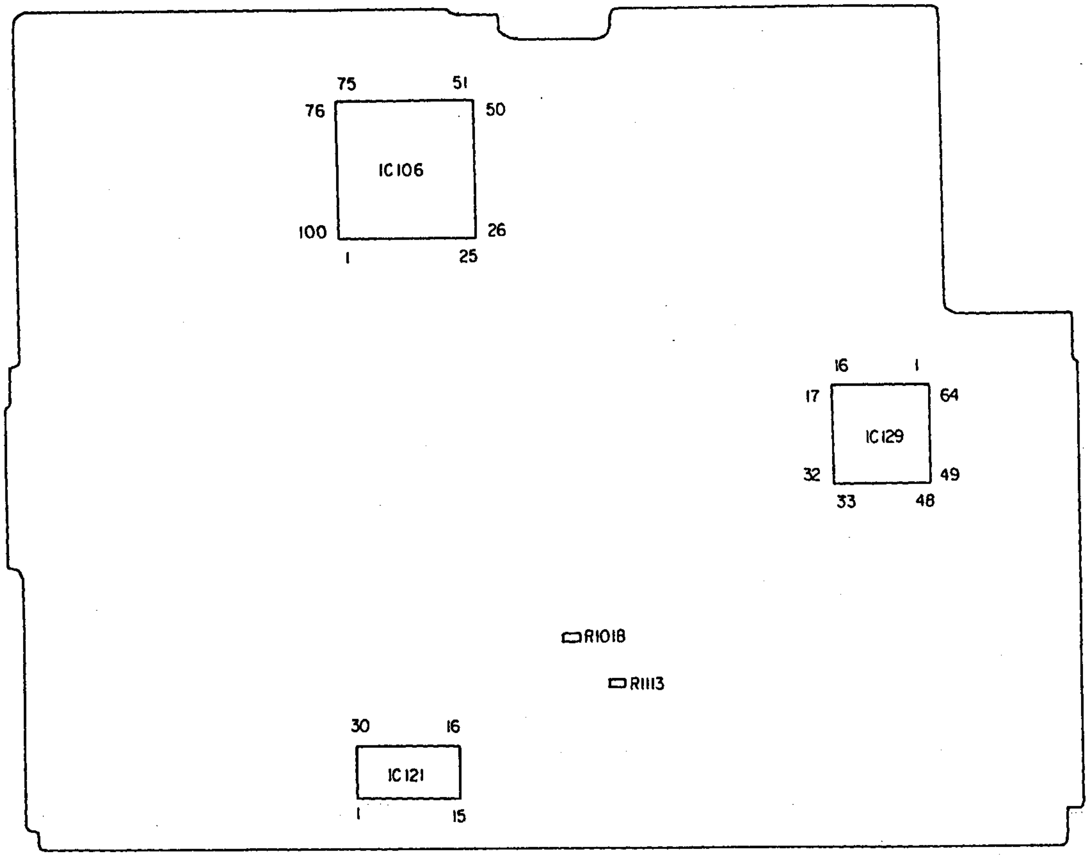
1) Set data: 01 to page: 0, address: 01.
2) Set the Hi-Fi sound switch (menu display) to " $\boxed{2}$ ".
3) Change the data of page: F, address: 60 and minimize the distortion rate.
4) Press the PAUSE button of the adjusting remote commander.
5) Set the Hi-Fi sound switch to " $\boxed{1}$ ".
6) Change the data of page: F, address: 60 and minimize the distortion rate.
7) Press the PAUSE button of the adjusting remote commander.
8) Repeat steps 2) to 7) and set the data of address: 60 so that the distortions rates when the Hi-Fi sound switch is set to " $\boxed{2}$ " and set to " $\boxed{1}$ " respectively are almost the same and minimum.
9) Press the PAUSE button of the adjusting remote commander.
10) Set data: 00 to page: 0, address: 01.
11) Set the Hi-Fi sound switch to "STEREO".

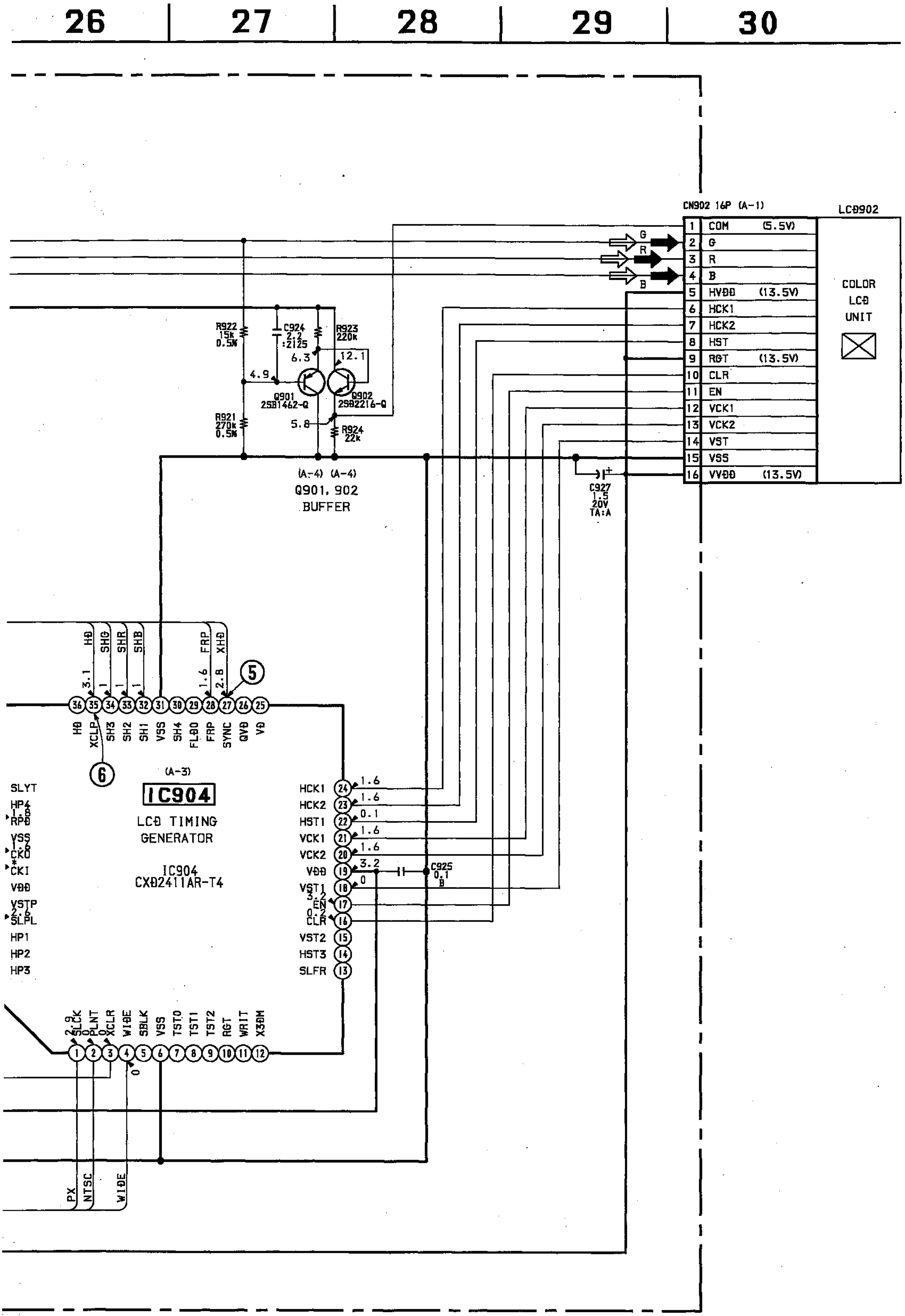
3-6. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-177 BOARD (COMPONENT SIDE)


IC202
48
37
1
36
12
25
13
24
IC 102
80
61
1
60
20
41
21
40
R1157

VC-177 BOARD (CONDUCTOR SIDE)


IC106
75
51
76
50
100
26
1
25
IC129
16
1
17
64
32
49
33
48
R1018
R1113
IC121
30
16
1
15


26
27
28
29
30
CN902 16P (A-1)
LCD902
1 COM (5.5V)
2 G
3 R
4 B
5 HVDD (13.5V)
6 HCK1
7 HCK2
8 HST
9 RGT (13.5V)
10 CLR
11 EN
12 VCK1
13 VCK2
14 VST
15 VSS
16 VVDD (13.5V)
COLOR LCD UNIT
G
R
B
R922 15k 0.5%
C924 2.2 :2125
R923 220k
6.3
12.1
4.9
Q901 2SB1462-Q
Q902 2SB2216-Q
R921 270k 0.5%
5.8
R924 22k
(A-4) (A-4)
Q901, 902 BUFFER
C927 1.5 20V TA:A
HD SHG SHR SHB FRP XHD
3.1 1 1 1 1.6 2.8
⑤
36 35 34 33 32 31 30 29 28 27 26 25
HD XCLP SH3 SH2 SH1 VSS SH4 FLDD FRP SYNC QVD VD
⑥
(A-3)
IC904
LCD TIMING GENERATOR
IC904 CXD2411AR-T4
SLYT
HP4
1.6 RPD
VSS
1.6 CKO
* CKI
VDD
VSTP
2.6 SLPL
HP1
HP2
HP3
HCK1 24 1.6
HCK2 23 1.6
HST1 22 0.1
VCK1 21 1.6
VCK2 20 1.6
VDD 19 3.2
VST1 18 0
3.2 EN 17
0.2 CLR 16
VST2 15
HST3 14
SLFR 13
C925 0.1 B
2.9 SLCK 0 PLNT 0 XCLR WIDE SBLK VSS TST0 TST1 TST2 RGT WRIT X30M
1 2 3 4 5 6 7 8 9 10 11 12
0
PX
NTSC
WIDE

COLOR EVF, BACK LIGHT, SENSOR

VF-95, VF-96, LB-45, FP-394

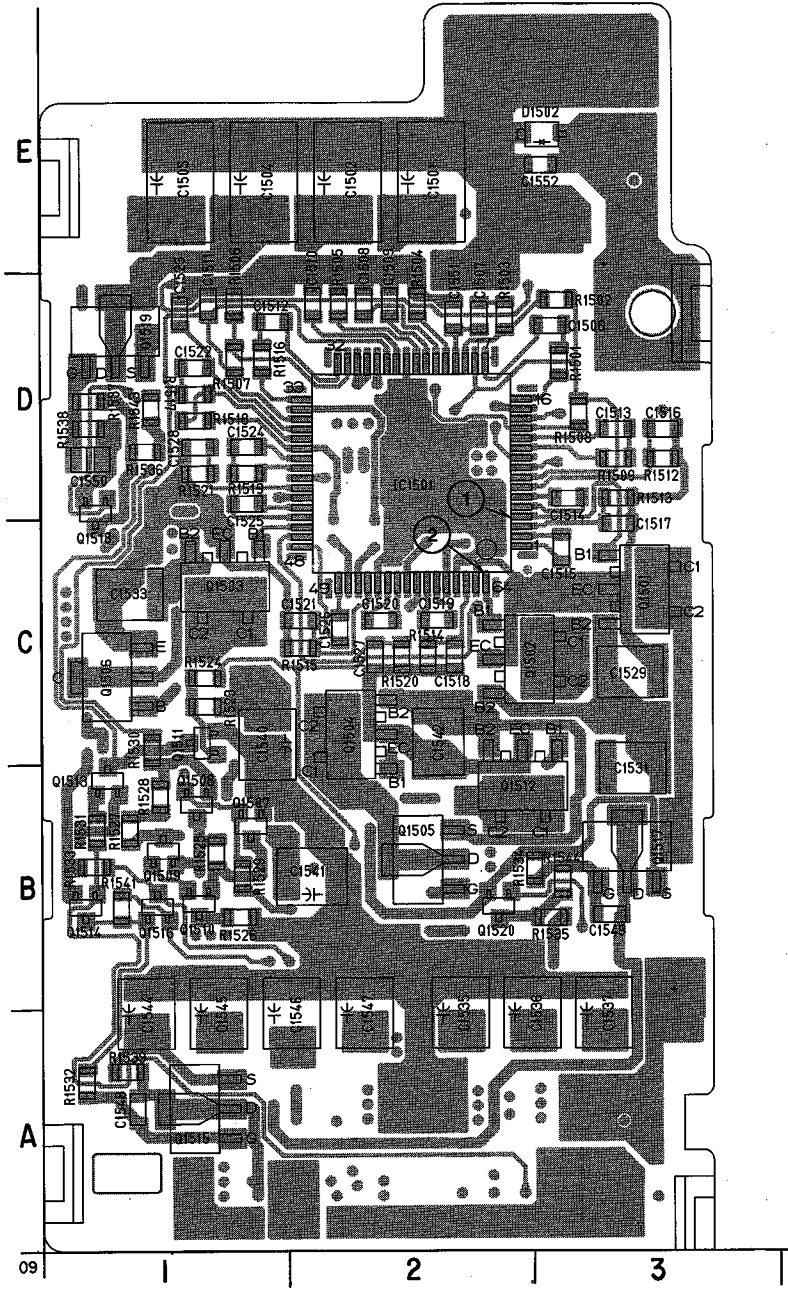
DD-86 (POWER SUPPLY) PRINTED WIRING BOARD

— Ref No. DD-86 BOARD: 2,000 series —

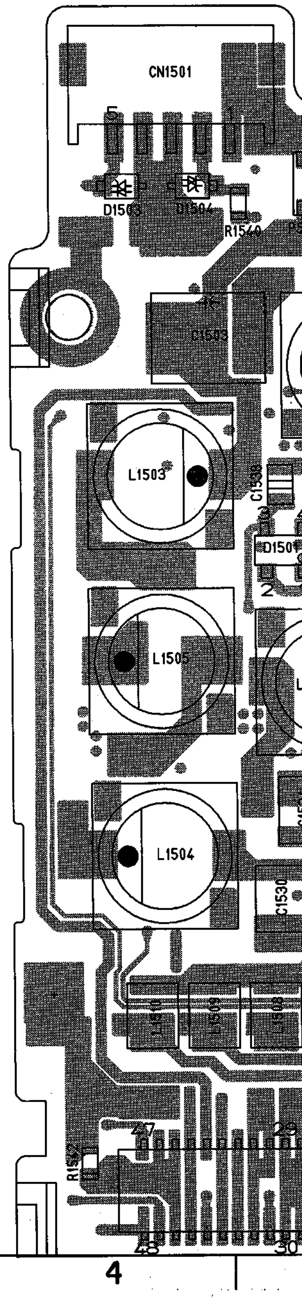
DD-86 BOARD

C1501	E-2
C1502	E-2
C1503	D-4
C1504	E-1
C1506	D-3
C1507	D-2
C1508	D-2
C1509	D-2
C1510	D-2
C1511	D-1
C1512	D-1
C1513	D-3
C1514	D-3
C1515	C-3
C1519	C-2
C1520	C-2
C1522	D-1
C1523	D-1
C1523	D-1
C1524	D-1
C1525	D-1
C1526	C-2
C1529	C-3
C1530	B-5
C1531	B-3
C1532	C-6
C1533	C-1
C1534	B-5
C1535	A-2
C1536	A-2
C1537	A-3
C1538	D-5
C1539	D-5
C1540	C-1
C1541	B-2
C1542	C-2
C1543	C-5
C1544	A-1
C1545	A-1
C1546	A-1
C1547	A-2
C1548	A-1
C1549	B-3
C1550	D-1
C1551	D-2
CN1501	E-4
CN1503	A-5
D1501	C-5
D1502	E-3
D1503	E-4
IC1501	D-2
L1501	D-5
L1502	D-6
L1503	D-4
L1504	B-4
L1505	C-4
L1506	B-6
L1507	B-5
L1508	B-5
L1509	B-4
L1510	B-4
L1511	C-5
L1512	C-5
L1513	B-6
L1514	B-6
L1515	B-5
L1516	B-5
PS1501	E-5
PS1502	E-5
PS1503	E-5
PS1504	E-6
Q1501	C-3
Q1502	C-2
Q1503	C-1
Q1504	C-2
Q1505	B-2
Q1506	C-1
Q1507	B-1
Q1508	B-1
Q1509	B-1
Q1510	B-1
Q1511	C-1
Q1512	B-2
Q1513	B-1
Q1514	B-1
Q1515	A-1
Q1516	B-1
Q1517	B-3
Q1518	C-1
Q1519	D-1
Q1520	B-2
Q1521	D-6
R1501	D-3
R1503	D-2
R1504	D-2
R1505	D-2
R1506	D-1
R1507	D-1
R1508	D-3
R1509	D-3
R1512	D-3
R1513	D-3
R1514	C-2
R1515	C-2
R1516	D-1
R1517	D-1
R1519	D-1
R1520	C-2
R1521	D-1
R1522	C-5
R1523	C-1
R1524	C-1
R1525	B-1
R1526	B-1
R1527	B-1
R1528	B-1
R1529	B-1
R1530	C-1
R1531	B-1
R1532	A-1
R1533	B-1
R1534	B-3
R1535	B-3
R1536	D-1
R1537	D-1
R1538	D-1
R1543	D-1
R1544	B-3
T1501	C-5

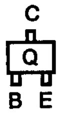
DD-86 BOARD (CONDUCTOR SIDE)


E
D
C
B
A
09
1
2
3
4
IC1501
D1502
C1552

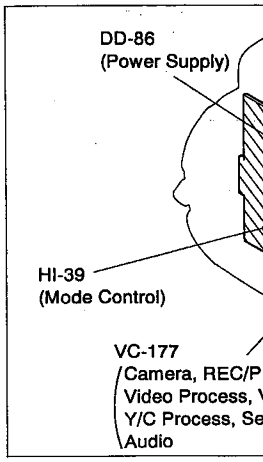
DD-86 BOARD(CO


CN1501
D1503
D1504
R1540
C1503
L1503
L1505
L1504
D1501
C1530
R1542

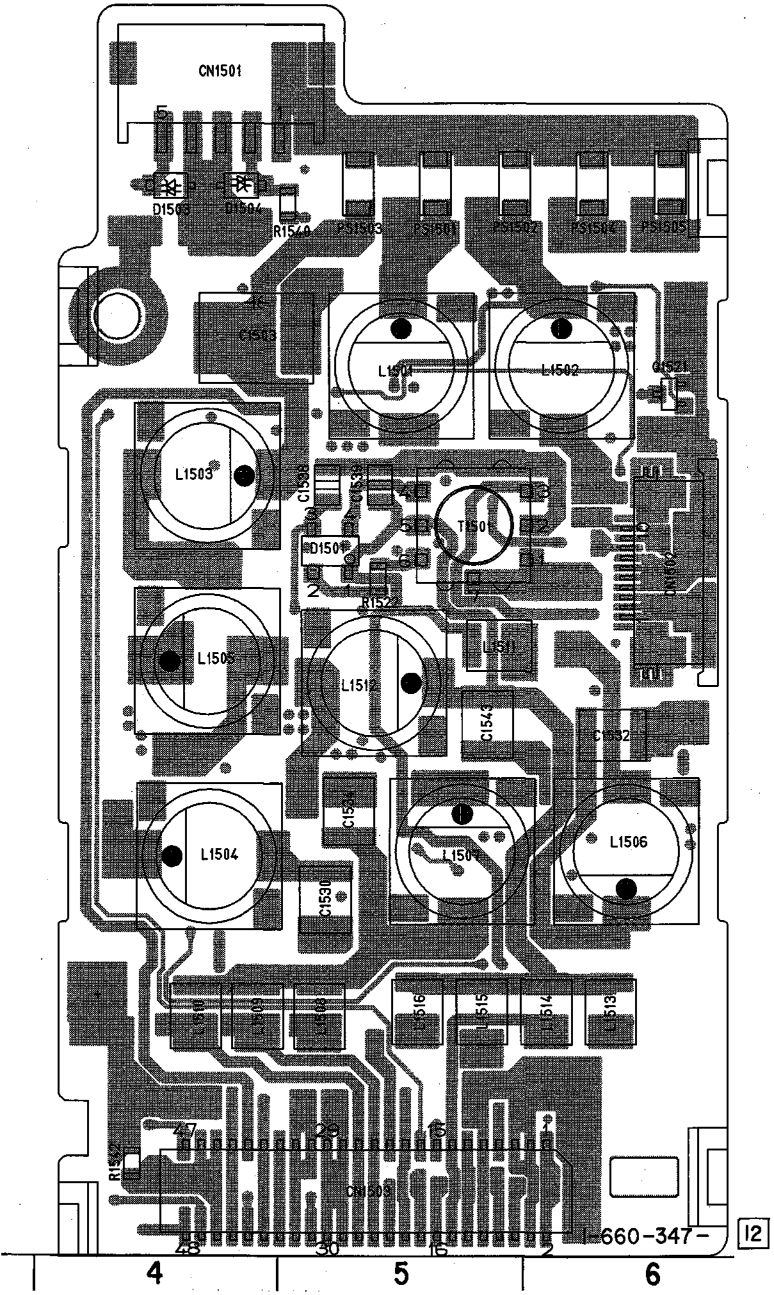
- For printed wiring boards.
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

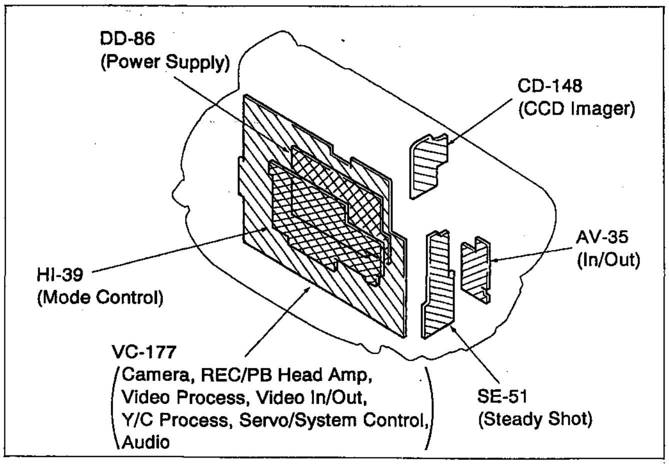


There are few cases that the part isn't mounted in this model is printed on this diagram.


DD-86
(Power Supply)
HI-39
(Mode Control)
VC-177
Camera, REC/P
Video Process, V
Y/C Process, Se
Audio

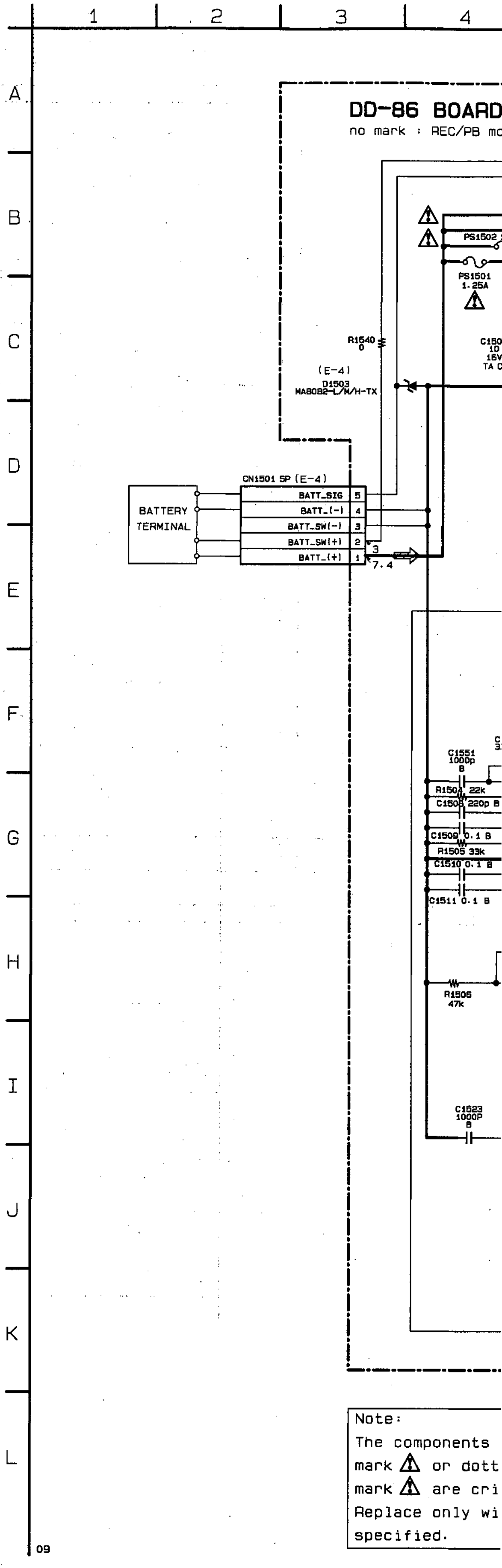
DD-86 BOARD(COMPONENT SIDE)

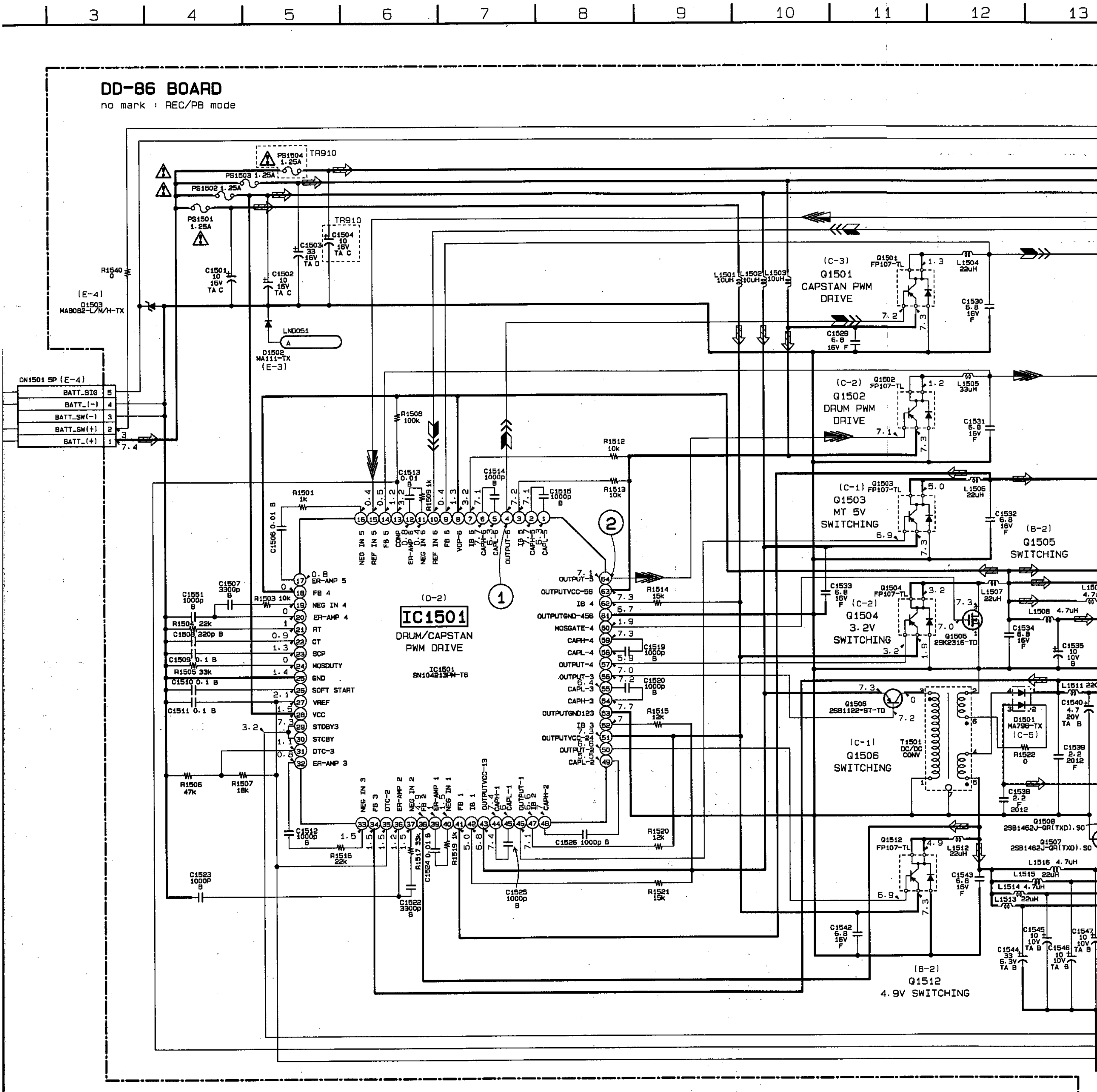

CN1501
5
1
D1503
D1504
R1540
PS1503
PS1501
PS1502
PS1504
PS1505
C1503
L1501
L1502
Q1521
L1503
C1538
C1539
T1501
D1501
R1521
CN1502
L1505
L1512
L1511
C1543
C1532
C1534
L1504
L1507
L1506
C1530
L1510
L1509
L1508
L1516
L1515
L1514
L1513
47
29
15
1
R1542
CN1503
48
30
16
2
1-660-347-
12
4
5
6


DD-86
(Power Supply)
CD-148
(CCD Imager)
HI-39
(Mode Control)
AV-35
(In/Out)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
SE-51
(Steady Shot)

DD-86 (POWER SUPPLY), FP-383 (CONNECTO

— Ref No. DD-86 BOARD: 20,000 series —

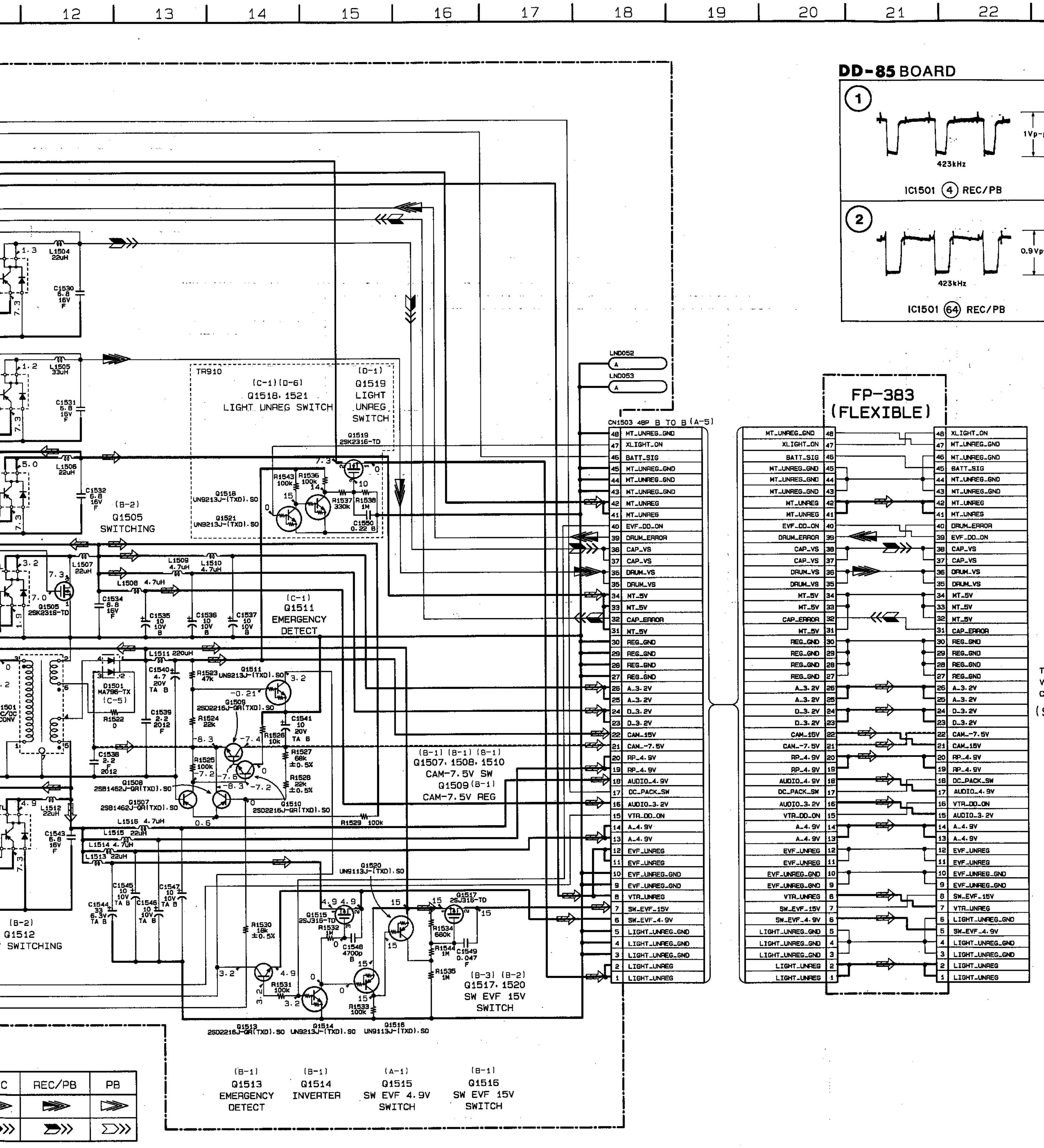

1
2
3
4
A
B
C
D
E
F
G
H
I
J
K
L
DD-86 BOARD
no mark : REC/PB mo
PS1502
PS1501
1.25A
R1540
0
C150
10
16V
TA C
(E-4)
D1503
MA8082-L/M/H-TX
CN1501 5P (E-4)
BATTERY
TERMINAL
BATT_SIG 5
BATT_(-) 4
BATT_SW(-) 3
BATT_SW(+) 2
BATT_(+) 1
3
7.4
C1551
1000p
B
R1504 22k
C1508 220p B
C1509 0.1 B
R1505 33k
C1510 0.1 B
C1511 0.1 B
R1506
47k
C1523
1000P
B
Note:
The components
mark ⚠ or dott
mark ⚠ are cri
Replace only wi
specified.
09

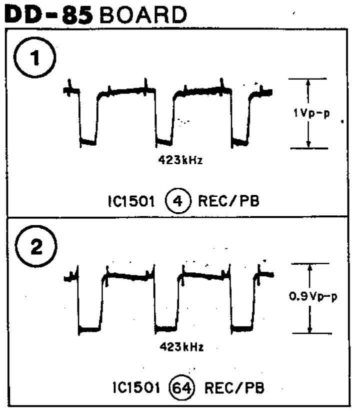

3
4
5
6
7
8
9
10
11
12
13
DD-86 BOARD
no mark : REC/PB mode
PS1504 1.25A
TR910
PS1503 1.25A
PS1502 1.25A
PS1501 1.25A
C1503 33 16V TA D
C1504 10 16V TA C
C1501 10 16V TA C
C1502 10 16V TA C
R1540 0
(E-4) Q1503 MA8082-L/M/H-TX
LND051
D1502 MA111-TX (E-3)
L1501 10uH
L1502 10uH
L1503 10uH
CN1501 5P (E-4)
BATT_SIG 5
BATT_(-) 4
BATT_SW(-) 3
BATT_SW(+) 2
BATT_(+) 1
7.4
R1508 100k
R1512 10k
R1513 10k
C1513 0.01 B
R1509 1k
C1514 1000p B
C1515 1000p B
R1501 1k
C1506 0.01 B
(D-2)
IC1501
DRUM/CAPSTAN PWM DRIVE
IC1501 SN104213PM-T6
NEG IN 5
REF IN 5
FB 5
COMP
ER-AMP 6
NEG IN 6
REF IN 6
FB 6
VOP-6
IB 6
CAPH-6
CAPL-6
OUTPUT-6
IB 5
CAPH-5
CAPL-5
ER-AMP 5
FB 4
NEG IN 4
ER-AMP 4
RT
CT
SCP
MOSDUTY
GND
SOFT START
VREF
VCC
STDBY3
STDBY
DTC-3
ER-AMP 3
OUTPUT-5
OUTPUTVCC-56
IB 4
OUTPUTGND-456
MOSGATE-4
CAPH-4
CAPL-4
OUTPUT-4
OUTPUT-3
CAPL-3
CAPH-3
OUTPUTGND123
IB 3
OUTPUTVCC-24
OUTPUT-2
CAPL-2
NEG IN 3
FB 3
DTC-2
ER-AMP 2
NEG IN 2
FB 2
ER-AMP 1
NEG IN 1
FB 1
IB 1
OUTPUTVCC-13
CAPH-1
CAPL-1
OUTPUT-1
IB 2
CAPH-2
C1551 1000p B
C1507 3300p B
R1503 10k
R1504 22k
C1508 220p B
C1509 0.1 B
R1505 33k
C1510 0.1 B
C1511 0.1 B
R1506 47k
R1507 18k
C1512 1000p B
R1516 22k
R1517 33k
C1524 0.01 B
R1519 1k
C1522 3300p B
C1523 1000P B
C1525 1000p B
C1526 1000p B
R1520 12k
R1521 15k
R1514 15k
C1519 1000p B
C1520 1000p B
R1515 12k
(C-3) Q1501 CAPSTAN PWM DRIVE
Q1501 FP107-TL
L1504 22uH
C1530 6.8 16V F
C1529 6.8 16V F
(C-2) Q1502 DRUM PWM DRIVE
Q1502 FP107-TL
L1505 33uH
C1531 6.8 16V F
(C-1) Q1503 MT 5V SWITCHING
Q1503 FP107-TL
L1506 22uH
C1532 6.8 16V F
(B-2) Q1505 SWITCHING
C1533 6.8 16V F
(C-2) Q1504 3.2V SWITCHING
Q1504 FP107-TL
L1507 22uH
L1508 4.7uH
Q1505 2SK2316-TD
C1534 6.8 16V F
C1535 10 10V B
Q1506 2SB1122-ST-TD
(C-1) Q1506 SWITCHING
T1501 DC/DC CONV
L1511 22
C1540 4.7 20V TA B
D1501 MA796-TX (C-5)
R1522 0
C1539 2.2 2012 F
C1538 2.2 F 2012
Q1508 2SB1462J-QR(TXD).SO
Q1507 2SB1462J-QR(TXD).SO
Q1512 FP107-TL
L1512 22uH
L1516 4.7uH
L1515 22uH
L1514 4.7uH
L1513 22uH
C1543 6.8 16V F
C1542 6.8 16V F
C1545 10 10V TA B
C1547 10 10V TA B
C1544 33 6.3V TA B
C1546 10 10V TA B
(B-2) Q1512 4.9V SWITCHING
①
②

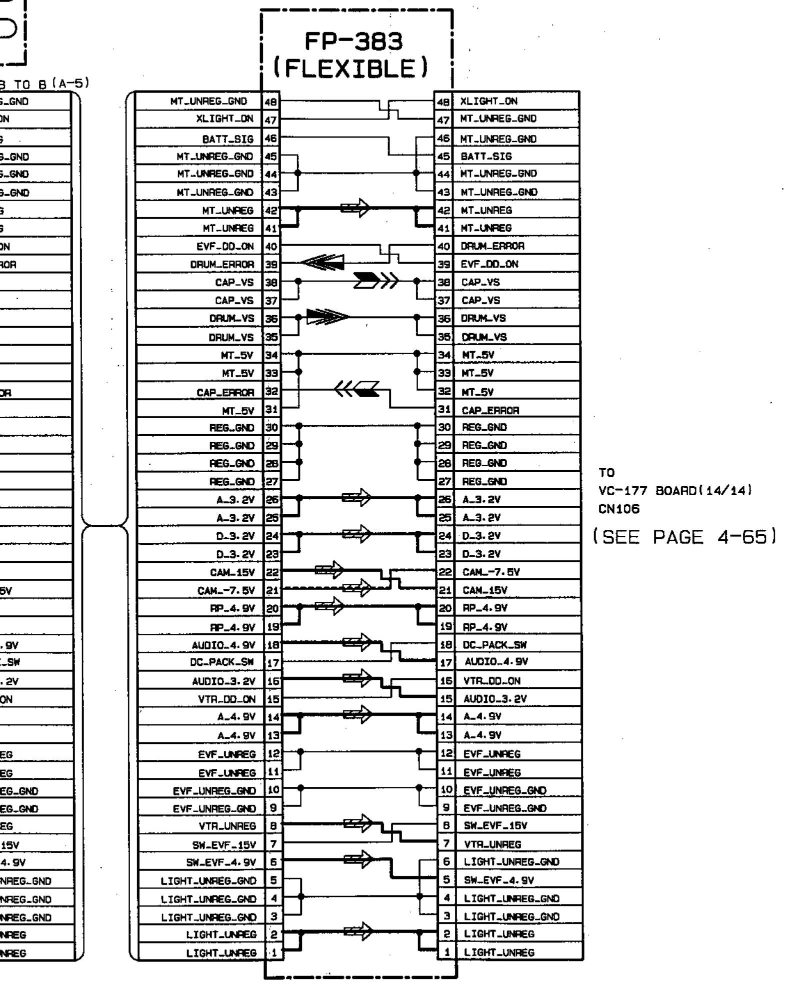
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• SIGNAL PATH

	REC	REC/PB	PB
Drum servo(speed and phase)	➡	➡	⇨
Capstan servo(speed and phase)	➡»»	⇒»»	⊃»»

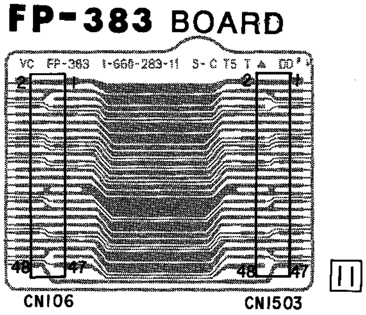

12
13
14
15
16
17
18
19
20
21
22
DD-85 BOARD
①
1Vp-p
423kHz
IC1501 ④ REC/PB
②
0.9Vp-p
423kHz
IC1501 64 REC/PB
L1504 22uH
C1530 6.8 16V F
L1505 33uH
C1531 6.8 16V F
L1506 22uH
C1532 6.8 16V F
(B-2) Q1505 SWITCHING
TR910
(C-1)(D-6) Q1518, 1521 LIGHT UNREG SWITCH
(D-1) Q1519 LIGHT UNREG SWITCH
Q1519 2SK2316-TD
R1543 100k
R1536 100k
R1537 330k
R1538 1M
C1550 0.22 B
Q1518 UN9213J-(TXD).SO
Q1521 UN9213J-(TXD).SO
L1507 22uH
L1508 4.7uH
L1509 4.7uH
L1510 4.7uH
Q1505 2SK2316-TD
C1534 6.8 16V F
C1535 10 10V B
C1536 10 10V B
C1537 10 10V B
(C-1) Q1511 EMERGENCY DETECT
L1511 220uH
D1501 MA796-TX (C-5)
R1522 0
C1540 4.7 20V TA B
R1523 47k
Q1511 UN9213J-(TXD).SO
Q1509 2SD2216J-QR(TXD).SO
C1539 2.2 2012 F
R1524 22k
C1541 10 20V TA B
R1526 10k
C1538 2.2 2012
R1525 100k
R1527 68k ±0.5%
R1528 22k ±0.5%
Q1508 2SB1462J-QR(TXD).SO
Q1507 2SB1462J-QR(TXD).SO
Q1510 2SD2216J-QR(TXD).SO
(B-1) (B-1) (B-1) Q1507, 1508, 1510 CAM-7.5V SW
Q1509 (B-1) CAM-7.5V REG
R1529 100k
L1512 22uH
L1516 4.7uH
L1515 22uH
L1514 4.7uH
L1513 22uH
C1543 6.8 16V F
C1544 33 6.3V TA B
C1545 10 10V TA B
C1546 10 10V TA B
C1547 10 10V TA B
(B-2) Q1512 SWITCHING
Q1520 UN9113J-(TXD).SO
R1530 18k ±0.5%
Q1515 2SJ316-TD
R1532 1M
C1548 4700p B
Q1517 2SJ316-TD
R1534 680k
R1544 1M
C1549 0.047 F
R1535 1M
(B-3) (B-2) Q1517, 1520 SW EVF 15V SWITCH
R1531 100k
R1533 100k
Q1513 2SD2216J-QR(TXD).SO
Q1514 UN9213J-(TXD).SO
Q1516 UN9113J-(TXD).SO
(B-1) Q1513 EMERGENCY DETECT
(B-1) Q1514 INVERTER
(A-1) Q1515 SW EVF 4.9V SWITCH
(B-1) Q1516 SW EVF 15V SWITCH
REC/PB
PB
LND052
LND053
CN1503 48P B TO B (A-5)
48 MT_UNREG_GND
47 XLIGHT_ON
46 BATT_SIG
45 MT_UNREG_GND
44 MT_UNREG_GND
43 MT_UNREG_GND
42 MT_UNREG
41 MT_UNREG
40 EVF_DD_ON
39 DRUM_ERROR
38 CAP_VS
37 CAP_VS
36 DRUM_VS
35 DRUM_VS
34 MT_5V
33 MT_5V
32 CAP_ERROR
31 MT_5V
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_15V
21 CAM_-7.5V
20 RP_4.9V
19 RP_4.9V
18 AUDIO_4.9V
17 DC_PACK_SW
16 AUDIO_3.2V
15 VTR_DD_ON
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 VTR_UNREG
7 SW_EVF_15V
6 SW_EVF_4.9V
5 LIGHT_UNREG_GND
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG
FP-383 (FLEXIBLE)
48 XLIGHT_ON
47 MT_UNREG_GND
46 MT_UNREG_GND
45 BATT_SIG
44 MT_UNREG_GND
43 MT_UNREG_GND
42 MT_UNREG
41 MT_UNREG
40 DRUM_ERROR
39 EVF_DD_ON
38 CAP_VS
37 CAP_VS
36 DRUM_VS
35 DRUM_VS
34 MT_5V
33 MT_5V
32 MT_5V
31 CAP_ERROR
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_-7.5V
21 CAM_15V
20 RP_4.9V
19 RP_4.9V
18 DC_PACK_SW
17 AUDIO_4.9V
16 VTR_DD_ON
15 AUDIO_3.2V
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 SW_EVF_15V
7 VTR_UNREG
6 LIGHT_UNREG_GND
5 SW_EVF_4.9V
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG




FP-383
(FLEXIBLE)
MT_UNREG_GND 48 48 XLIGHT_ON
XLIGHT_ON 47 47 MT_UNREG_GND
BATT_SIG 46 46 MT_UNREG_GND
MT_UNREG_GND 45 45 BATT_SIG
MT_UNREG_GND 44 44 MT_UNREG_GND
MT_UNREG_GND 43 43 MT_UNREG_GND
MT_UNREG 42 42 MT_UNREG
MT_UNREG 41 41 MT_UNREG
EVF_DD_ON 40 40 DRUM_ERROR
DRUM_ERROR 39 39 EVF_DD_ON
CAP_VS 38 38 CAP_VS
CAP_VS 37 37 CAP_VS
DRUM_VS 36 36 DRUM_VS
DRUM_VS 35 35 DRUM_VS
MT_5V 34 34 MT_5V
MT_5V 33 33 MT_5V
CAP_ERROR 32 32 MT_5V
MT_5V 31 31 CAP_ERROR
REG_GND 30 30 REG_GND
REG_GND 29 29 REG_GND
REG_GND 28 28 REG_GND
REG_GND 27 27 REG_GND
A_3.2V 26 26 A_3.2V
A_3.2V 25 25 A_3.2V
D_3.2V 24 24 D_3.2V
D_3.2V 23 23 D_3.2V
CAM_15V 22 22 CAM_-7.5V
CAM_-7.5V 21 21 CAM_15V
RP_4.9V 20 20 RP_4.9V
RP_4.9V 19 19 RP_4.9V
AUDIO_4.9V 18 18 DC_PACK_SW
DC_PACK_SW 17 17 AUDIO_4.9V
AUDIO_3.2V 16 16 VTR_DD_ON
VTR_DD_ON 15 15 AUDIO_3.2V
A_4.9V 14 14 A_4.9V
A_4.9V 13 13 A_4.9V
EVF_UNREG 12 12 EVF_UNREG
EVF_UNREG 11 11 EVF_UNREG
EVF_UNREG_GND 10 10 EVF_UNREG_GND
EVF_UNREG_GND 9 9 EVF_UNREG_GND
VTR_UNREG 8 8 SW_EVF_15V
SW_EVF_15V 7 7 VTR_UNREG
SW_EVF_4.9V 6 6 LIGHT_UNREG_GND
LIGHT_UNREG_GND 5 5 SW_EVF_4.9V
LIGHT_UNREG_GND 4 4 LIGHT_UNREG_GND
LIGHT_UNREG_GND 3 3 LIGHT_UNREG_GND
LIGHT_UNREG 2 2 LIGHT_UNREG
LIGHT_UNREG 1 1 LIGHT_UNREG
TO
VC-177 BOARD(14/14)
CN106
(SEE PAGE 4-65)

FP-383 (CONNECTOR) PRINTED WIRING BOARD

— Ref No. DD-86 BOARD: 20,000 series —

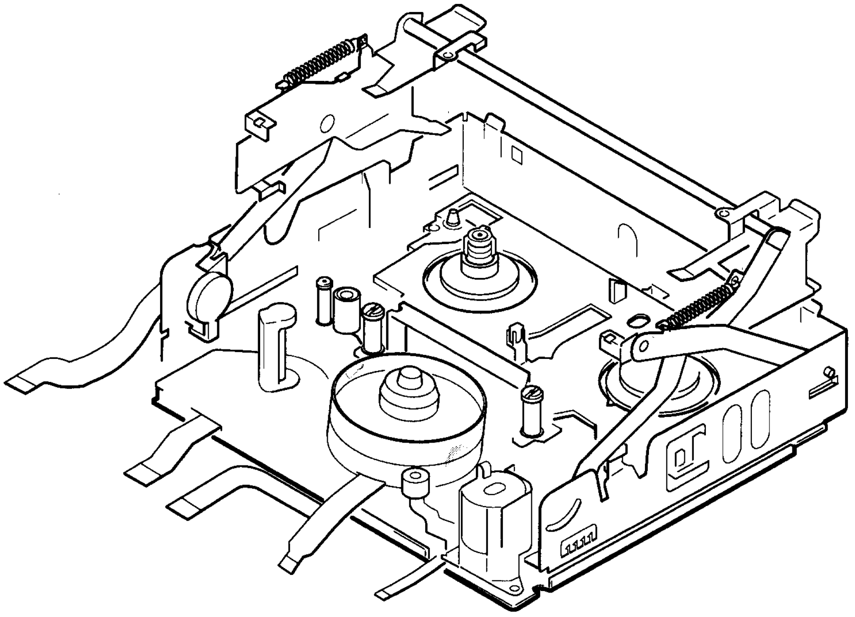

FP-383 BOARD
VC FP-383 1-660-283-11 5-C T5 T ▲ DD
2
1
2
1
48
47
48
47
11
CN106
CN1503

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

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For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the USE mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the USE mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to USE mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

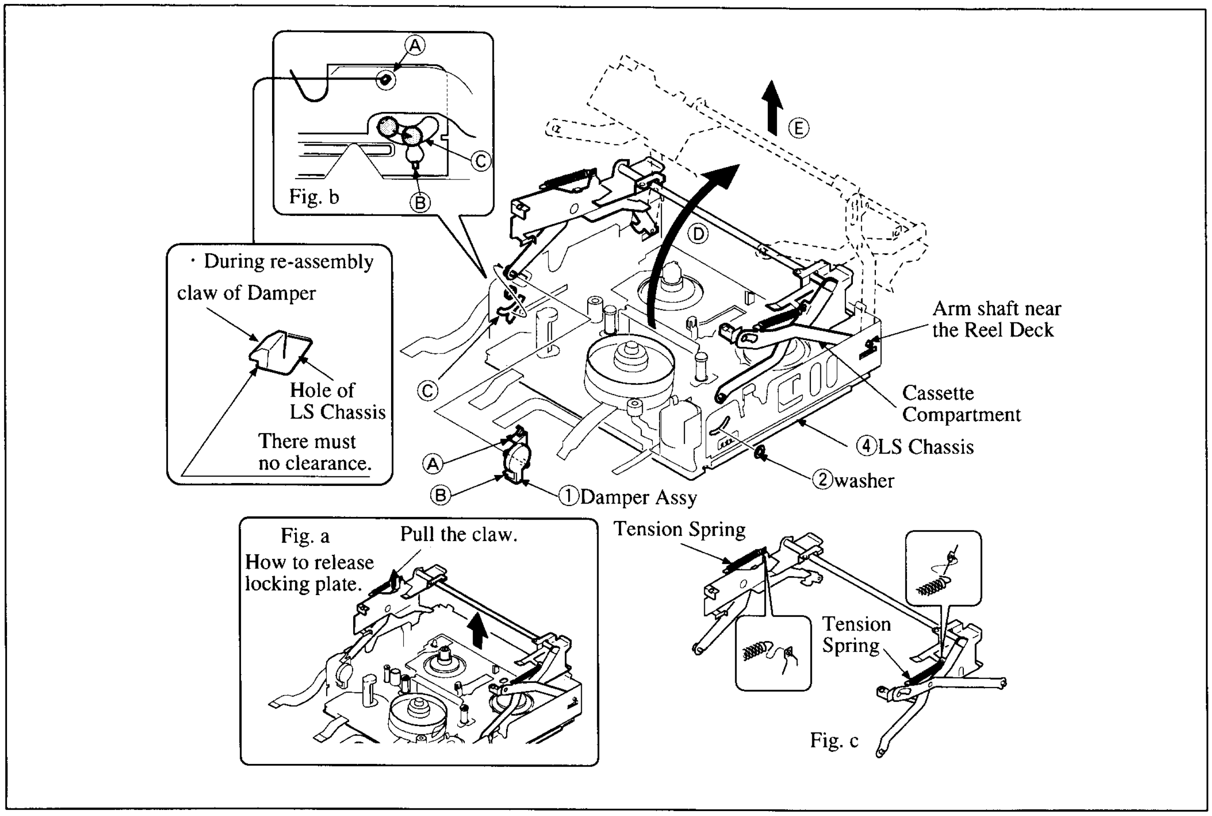

Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

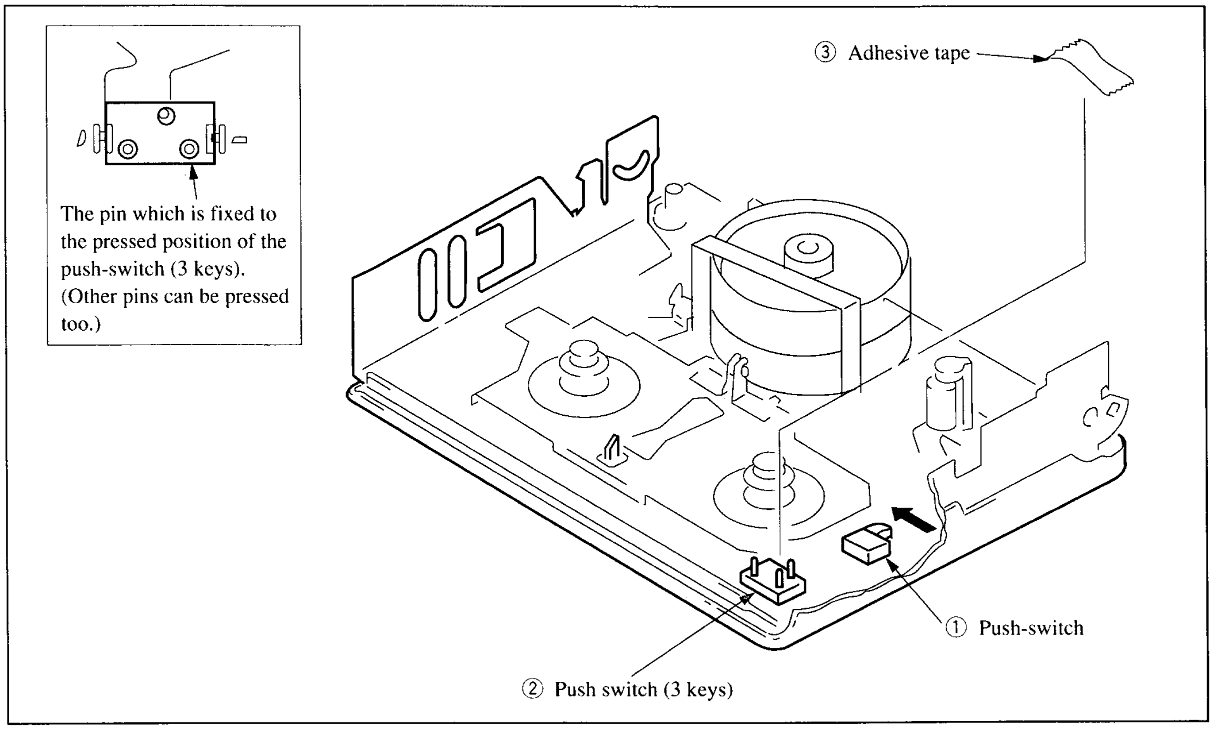

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

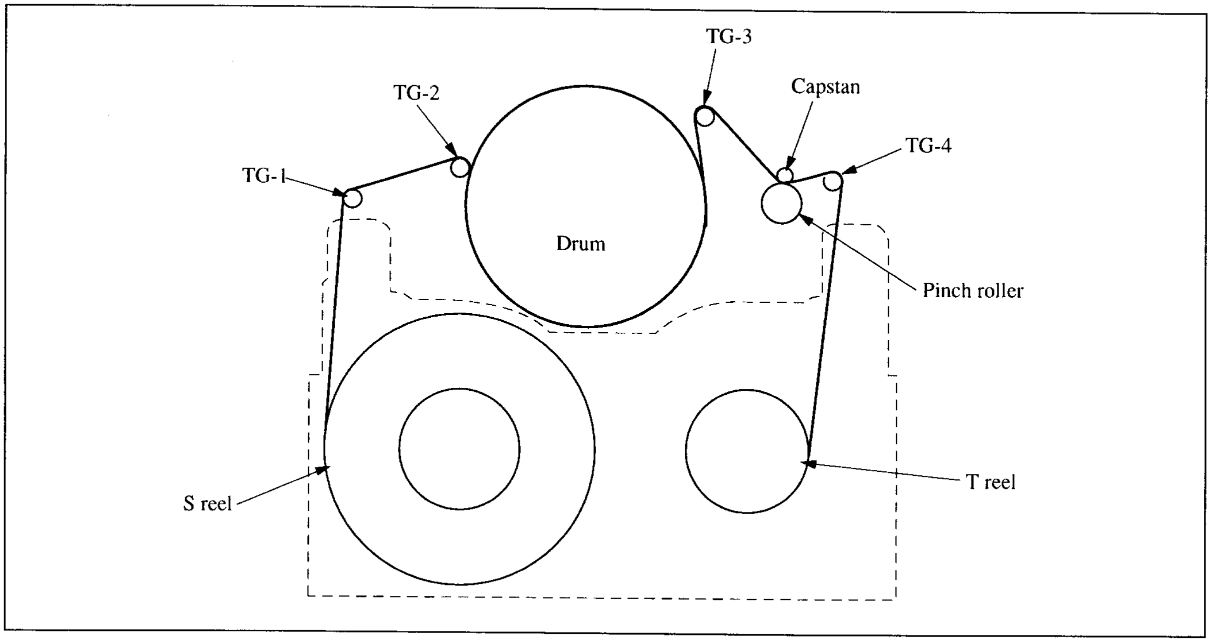


Fig. 3

2-3. Periodic Check Items

	Maintenance and Inspection Points	Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD RVS } Torque Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

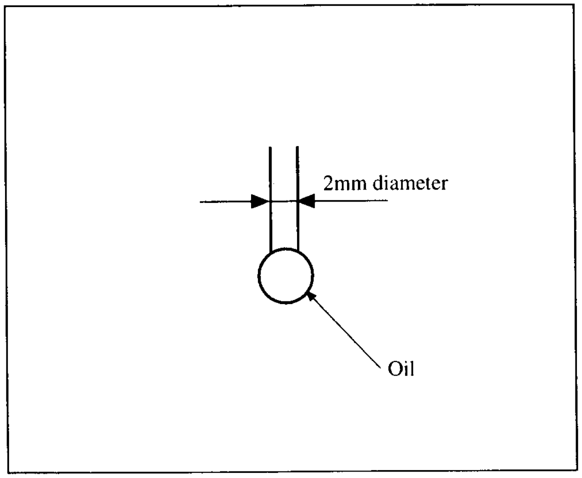


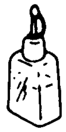
Fig. 4

2-4. Service Tool List

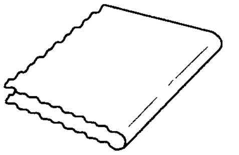
Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

Other equipment
- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

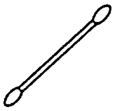
J-1



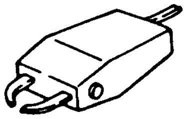
J-2



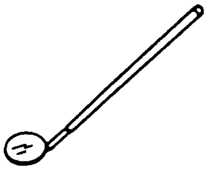
J-3



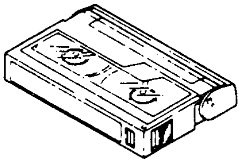
J-4



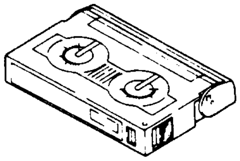
J-5



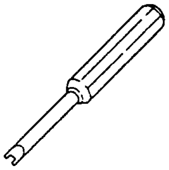
J-6



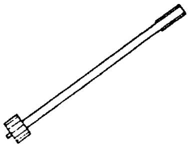
J-7



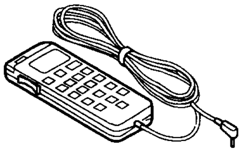
J-8



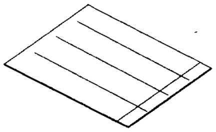
J-9



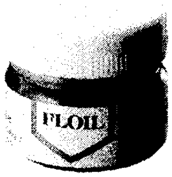
J-10



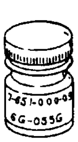
J-11



J-12



J-13



3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

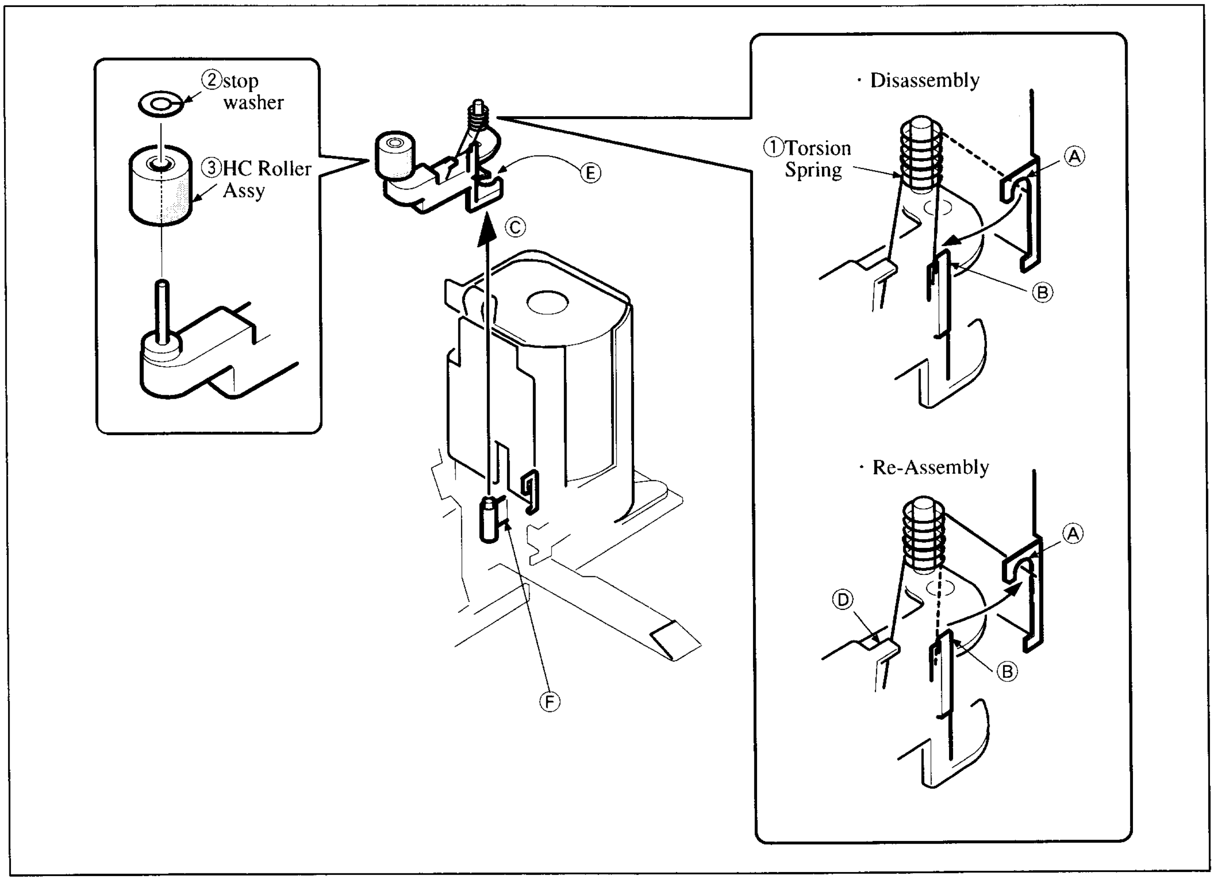

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓐ
Ⓓ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

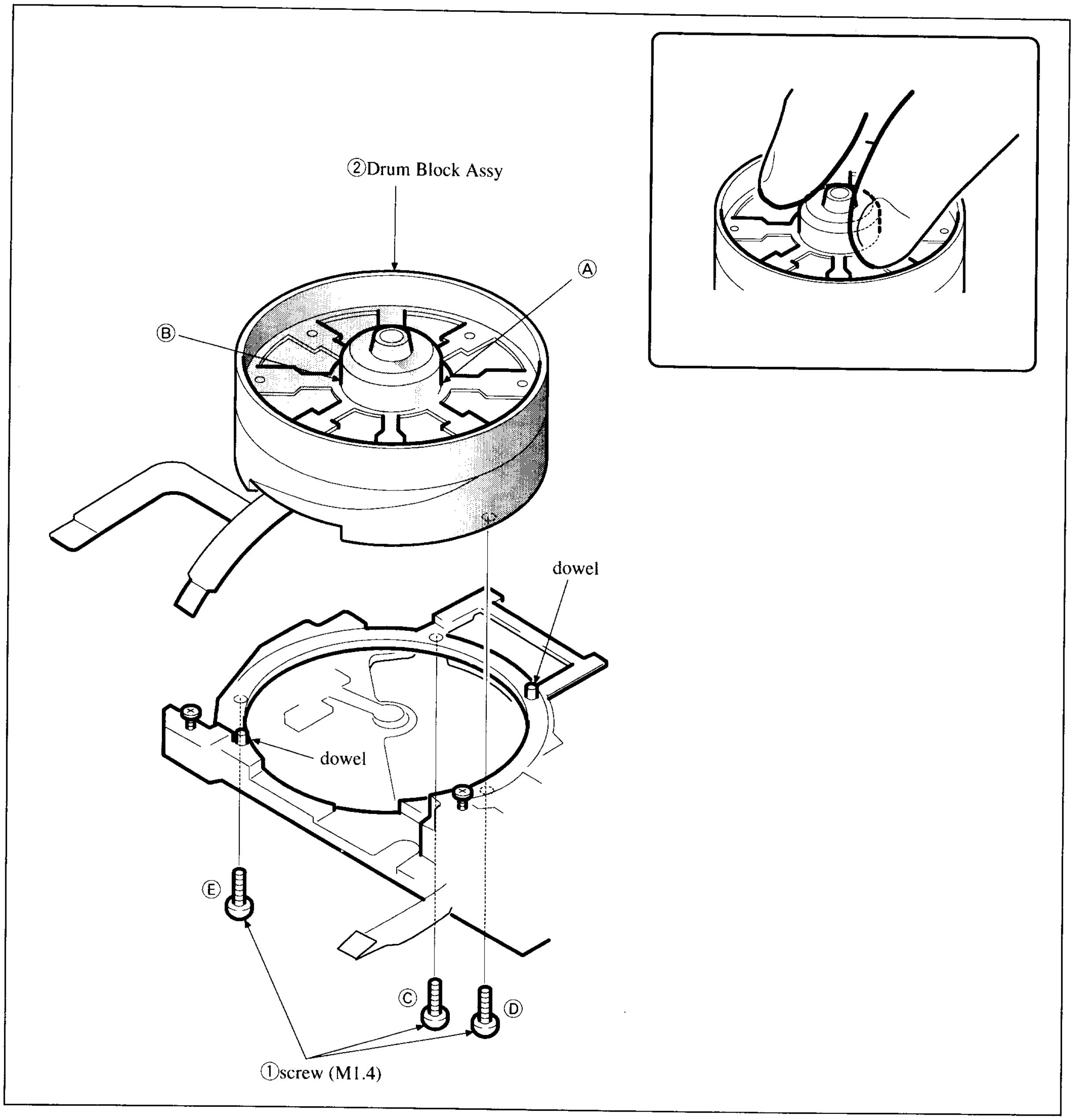


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

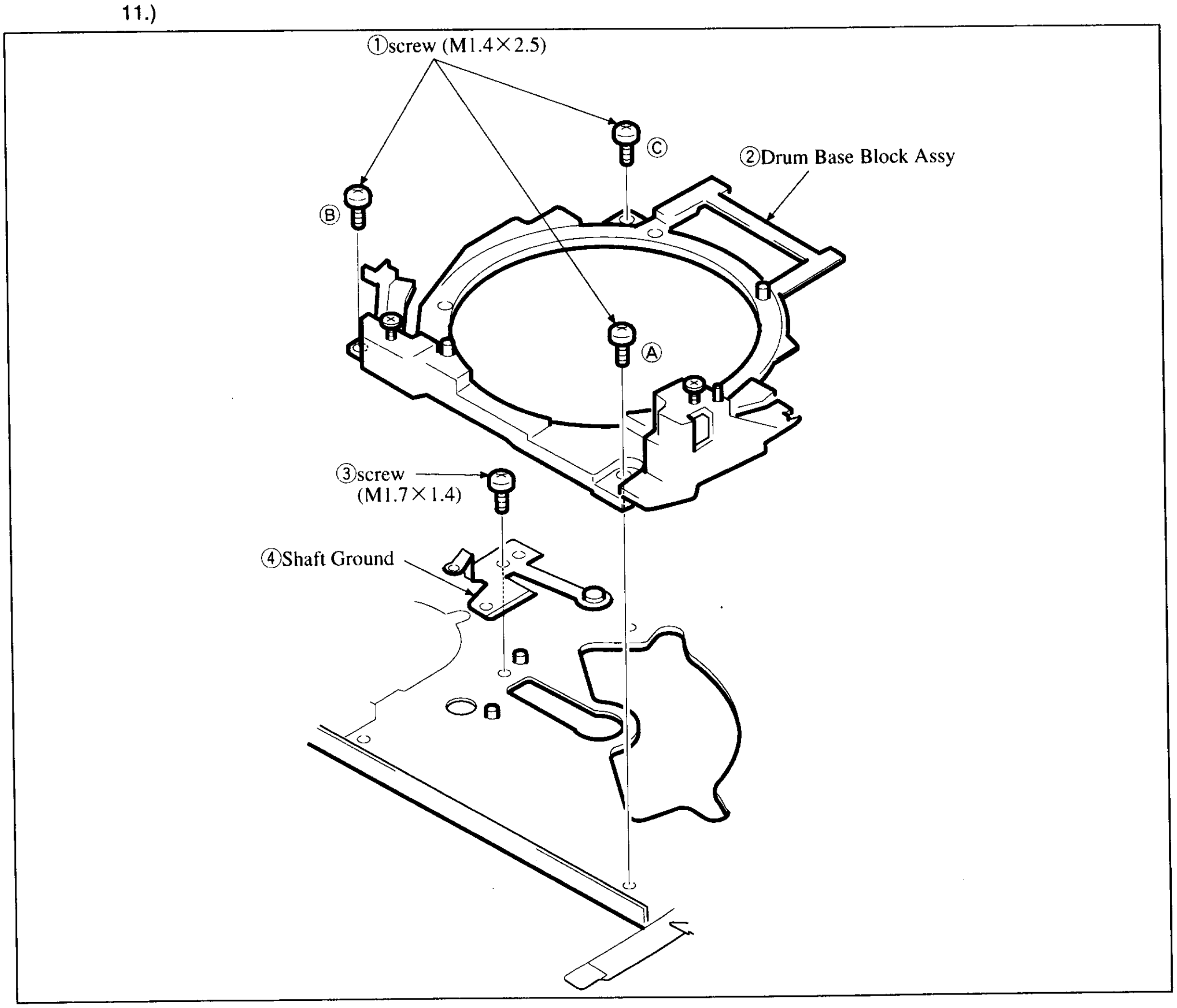


Fig. 7

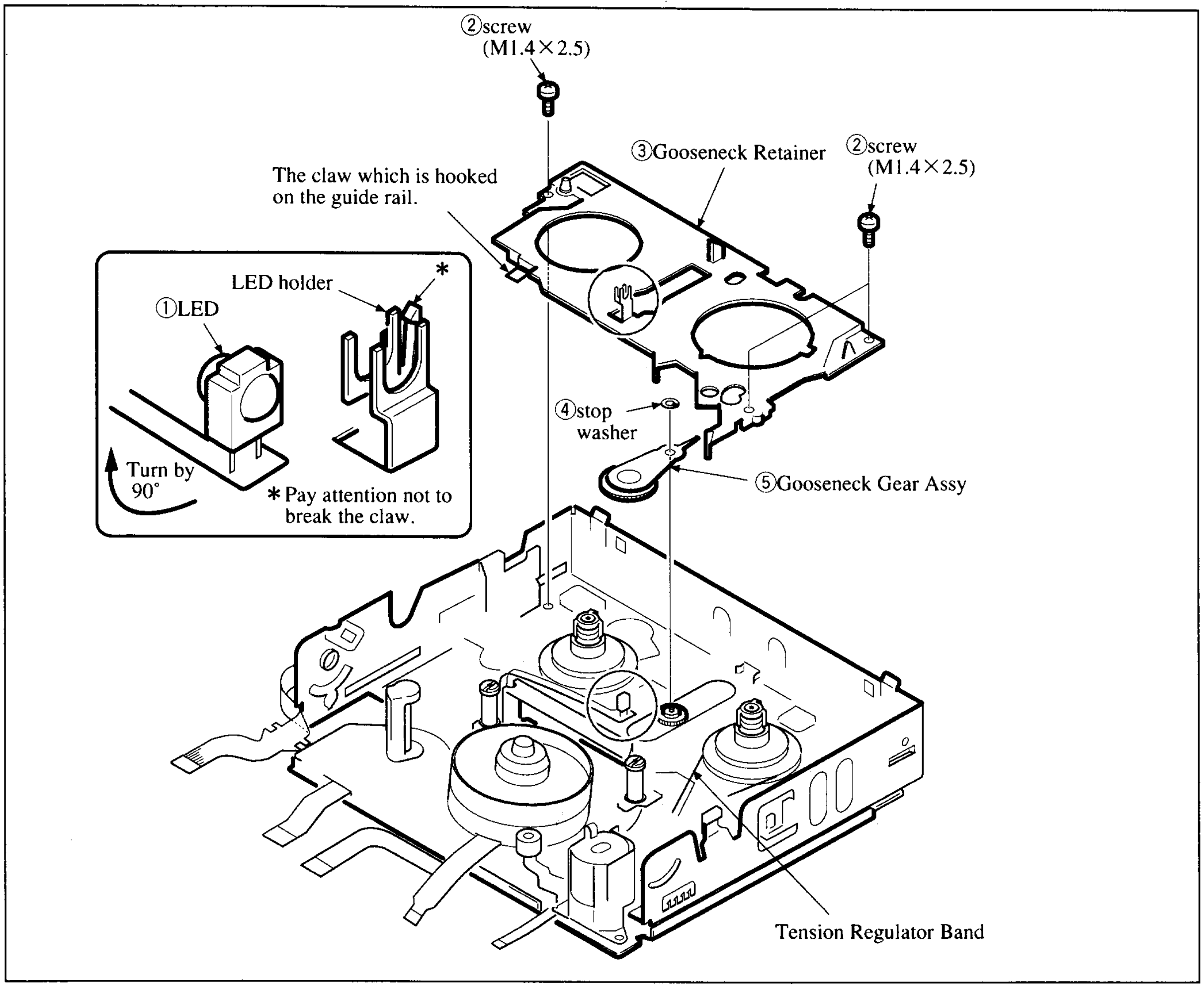
3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.



②screw (M1.4×2.5)
③Gooseneck Retainer
②screw (M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

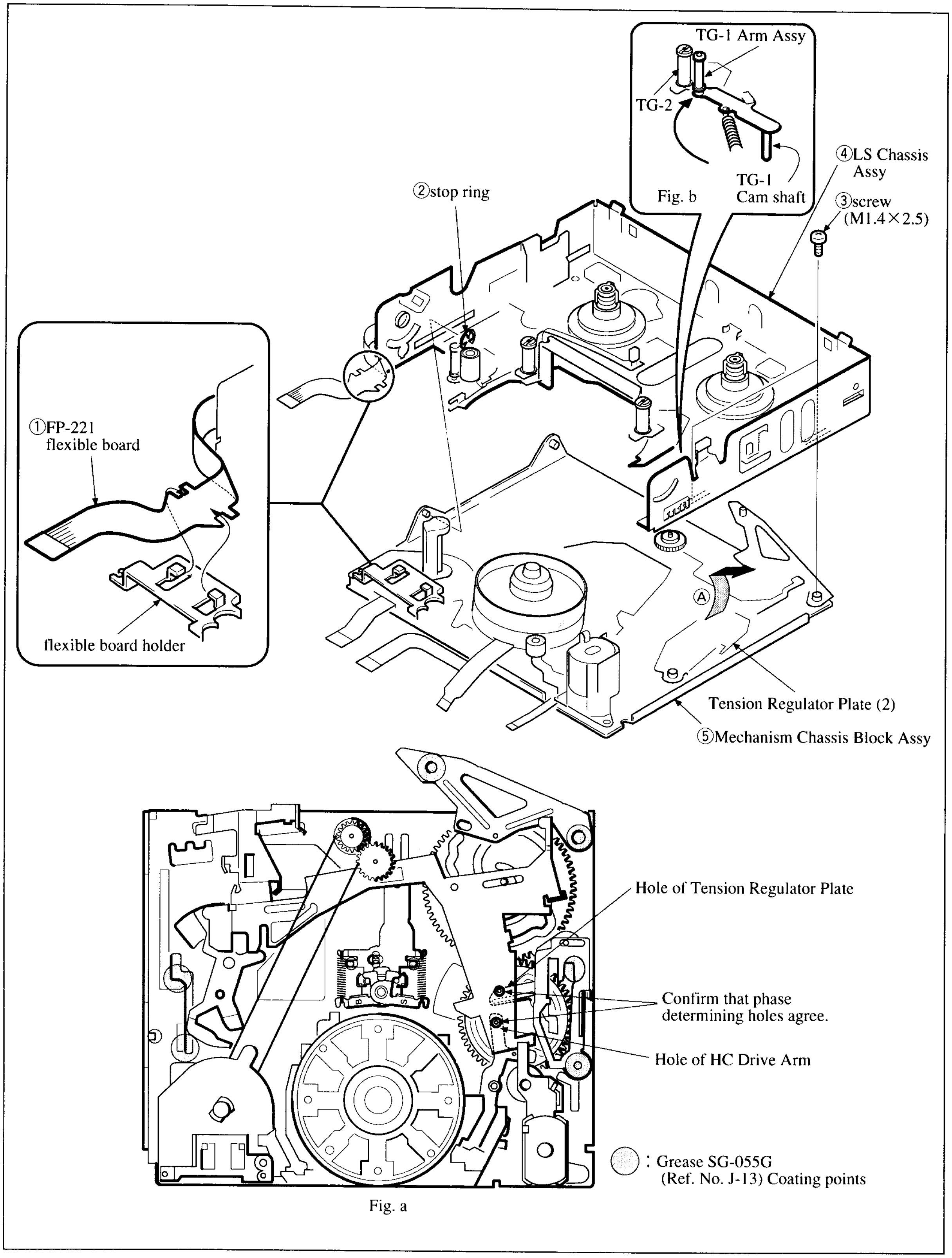

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
②stop ring
④LS Chassis Assy
③screw (M1.4×2.5)
①FP-221 flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase determining holes agree.
Hole of HC Drive Arm
: Grease SG-055G (Ref. No. J-13) Coating points
Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

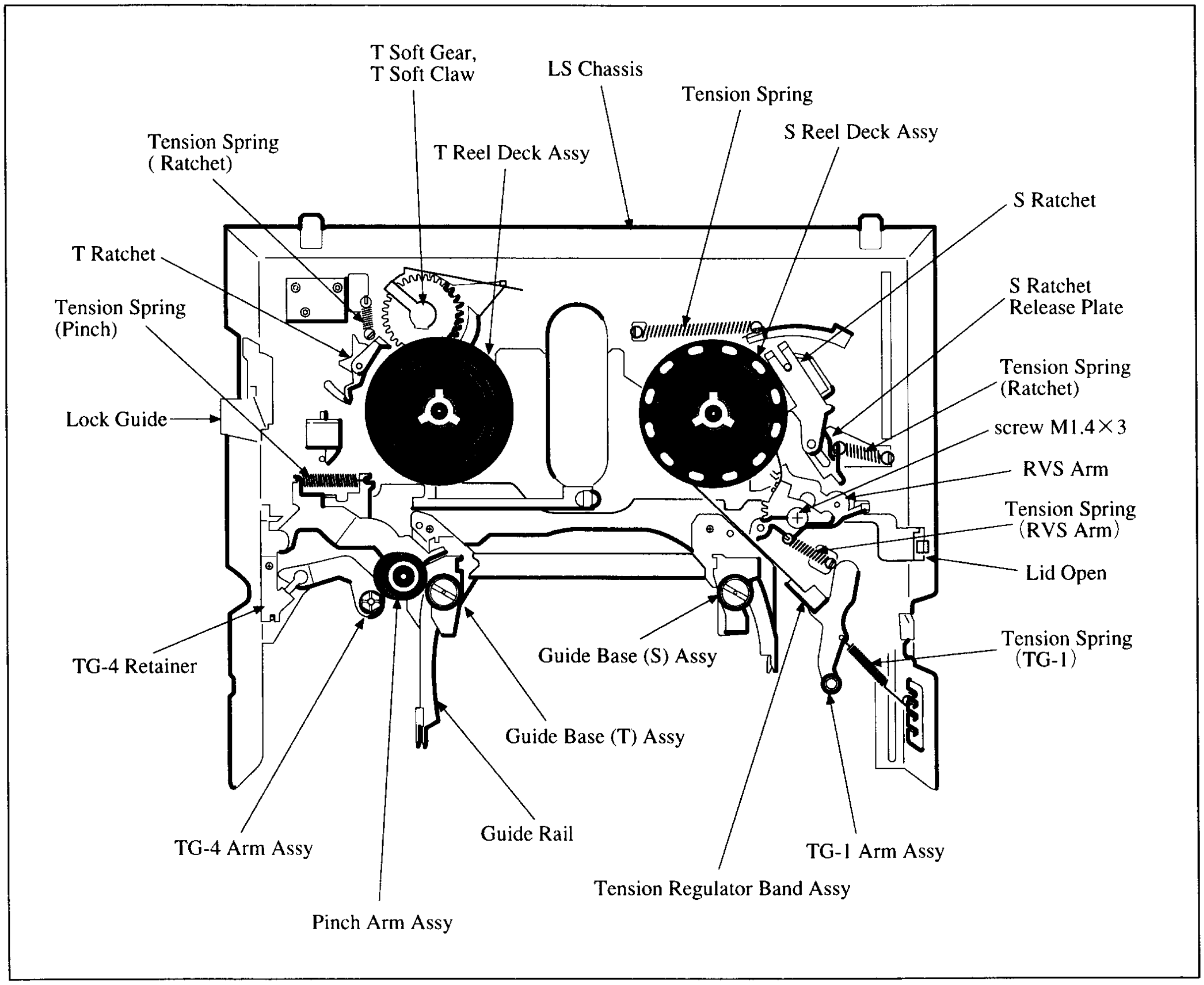

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
TG-4 Retainer
Guide Base (S) Assy
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

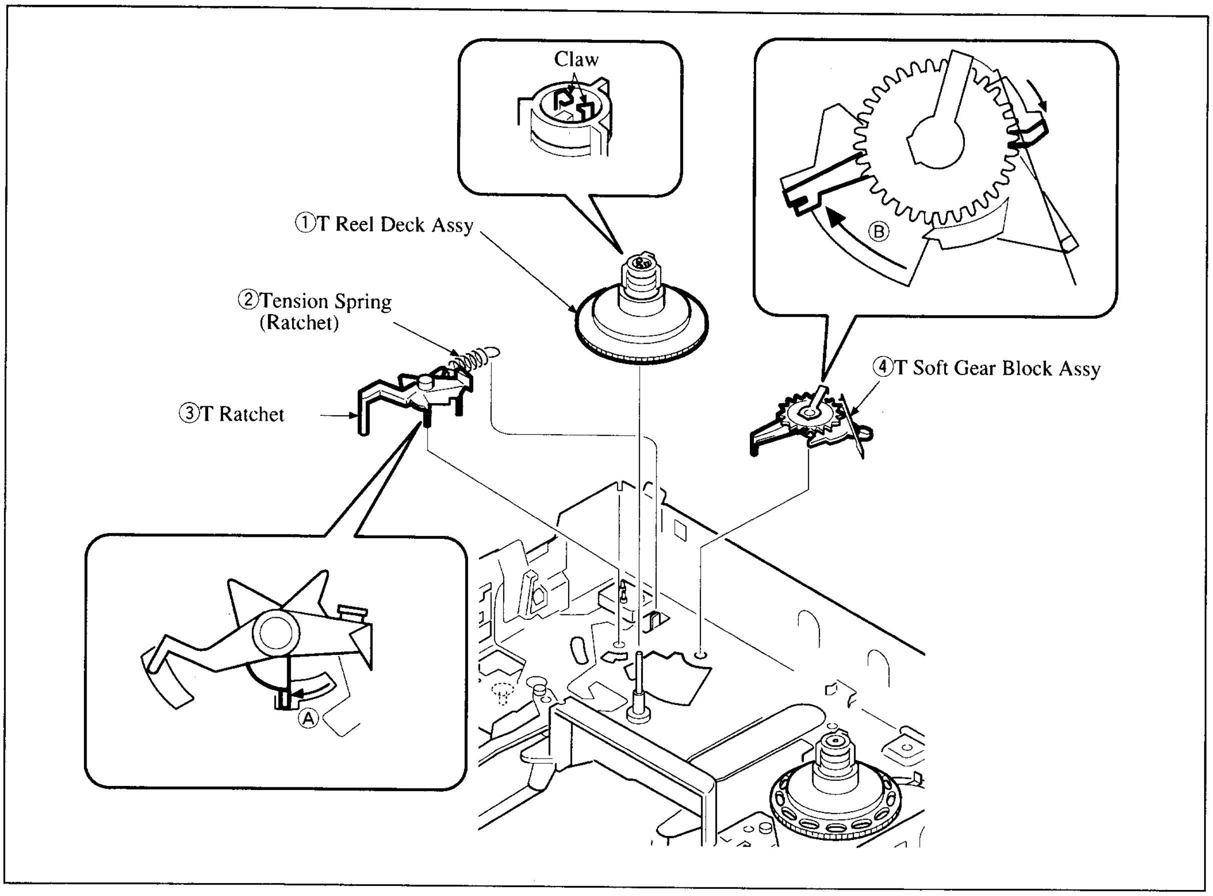


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

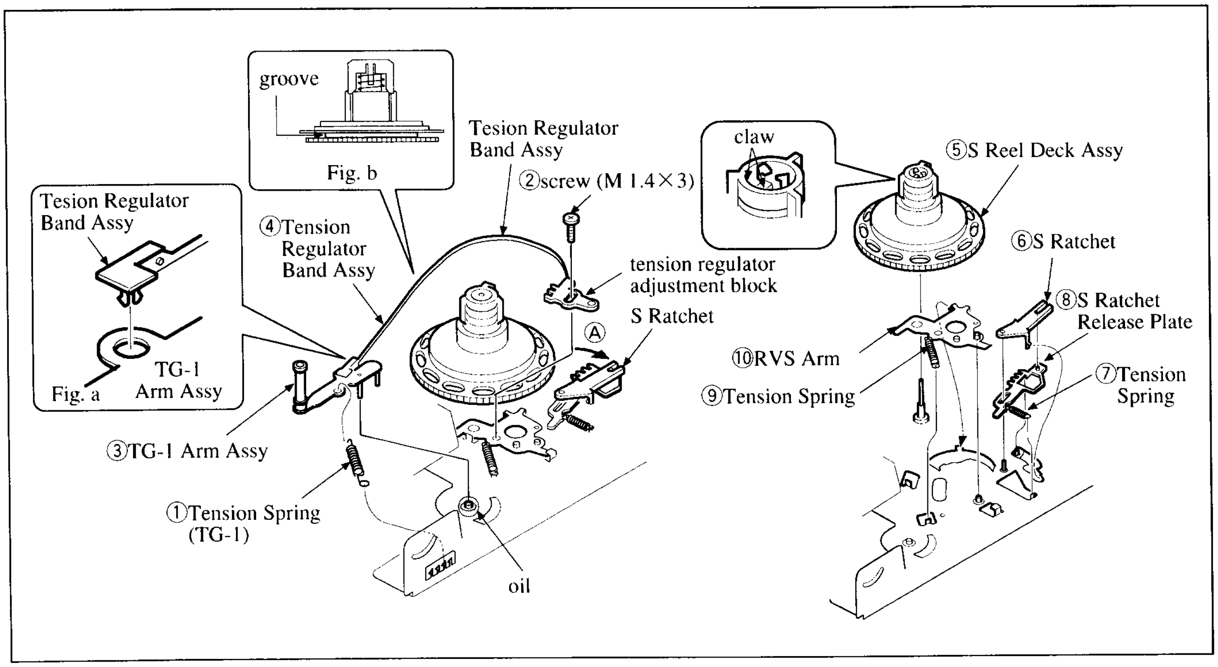

groove
Fig. b
Tesion Regulator
Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
⑥S Ratchet
⑧S Ratchet
Release Plate
⑦Tension
Spring
Tesion Regulator
Band Assy
TG-1
Arm Assy
Fig. a
④Tension
Regulator
Band Assy
tension regulator
adjustment block
S Ratchet
Ⓐ
⑩RVS Arm
⑨Tension Spring
③TG-1 Arm Assy
①Tension Spring
(TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

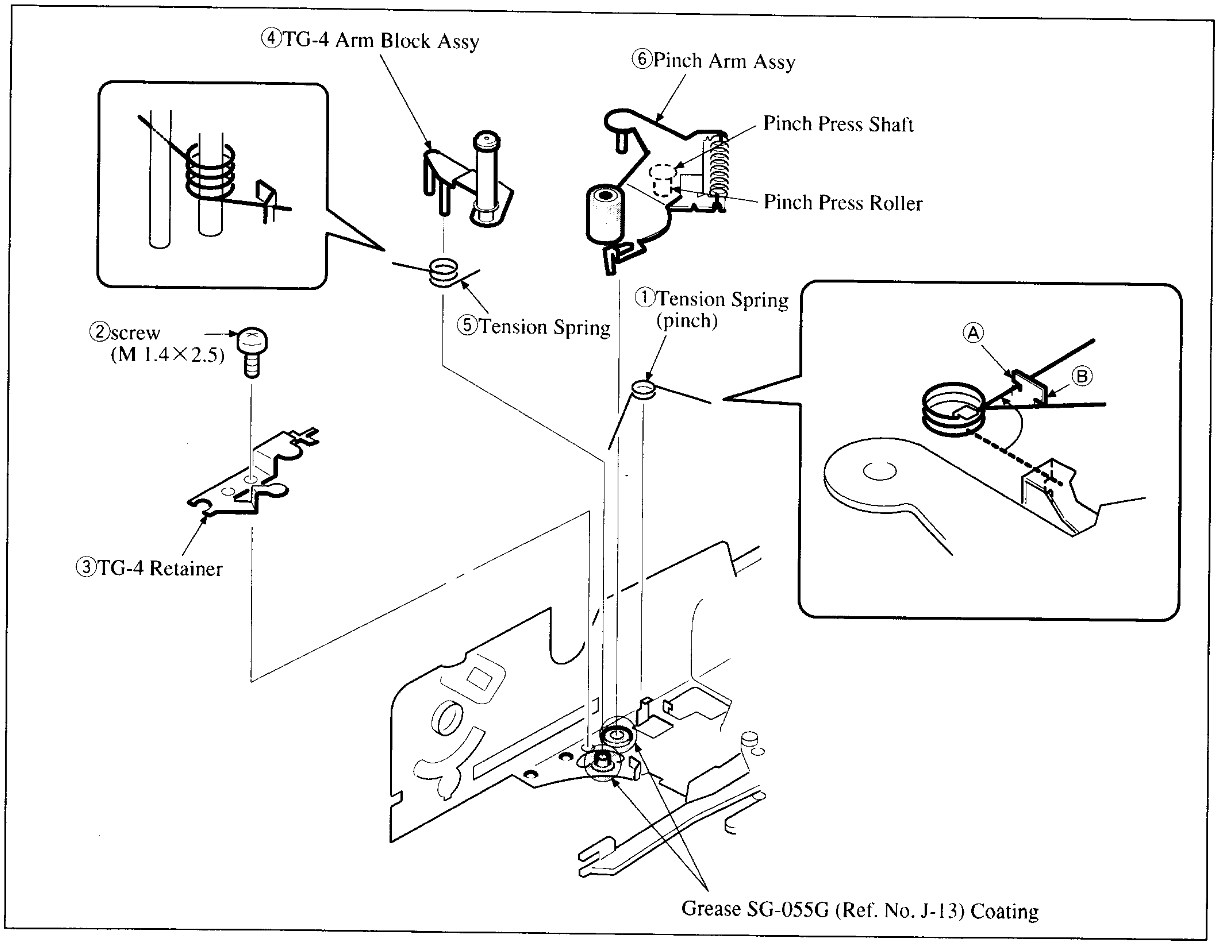

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring (pinch)
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide (Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.

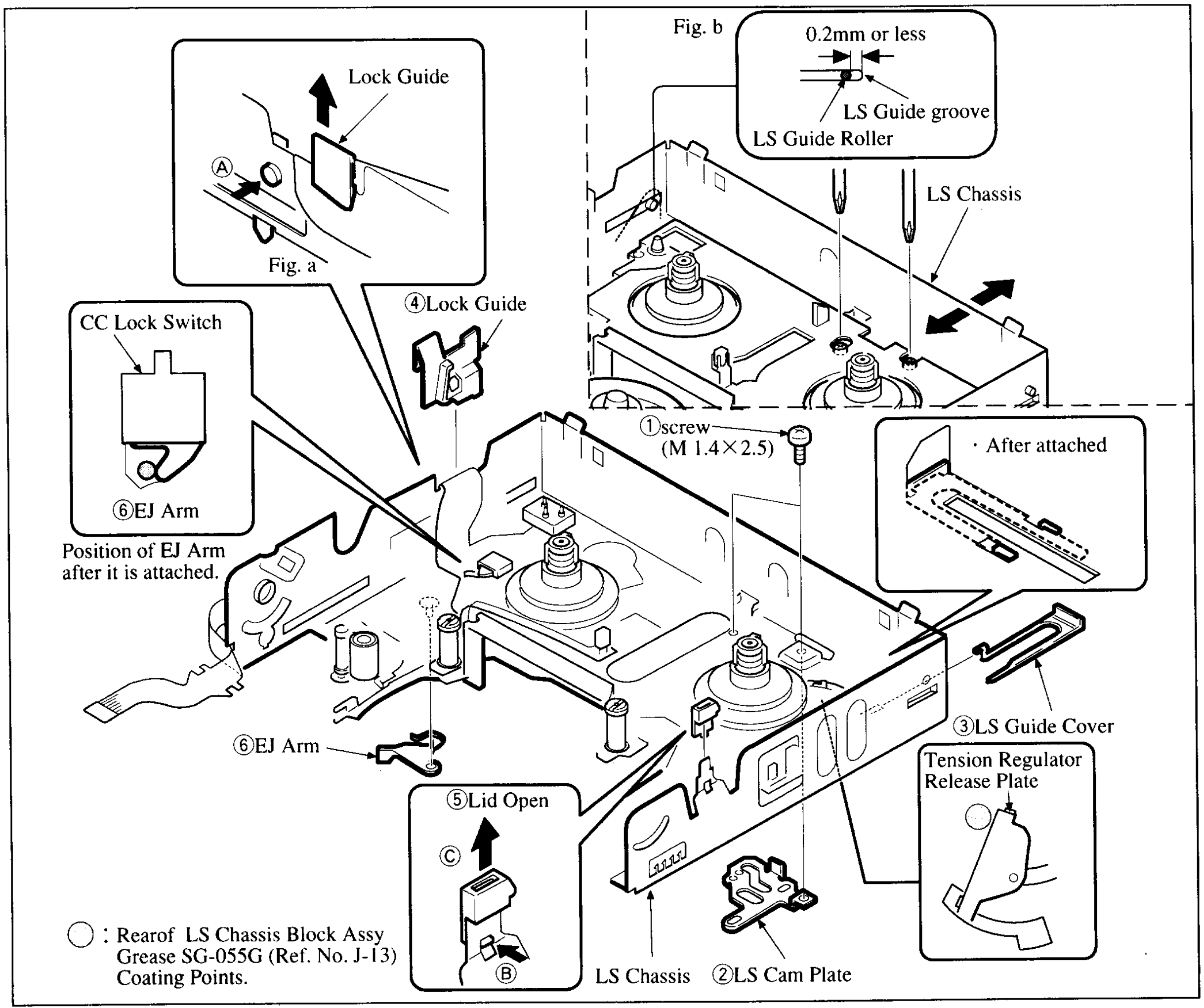

Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
LS Chassis
②LS Cam Plate
○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

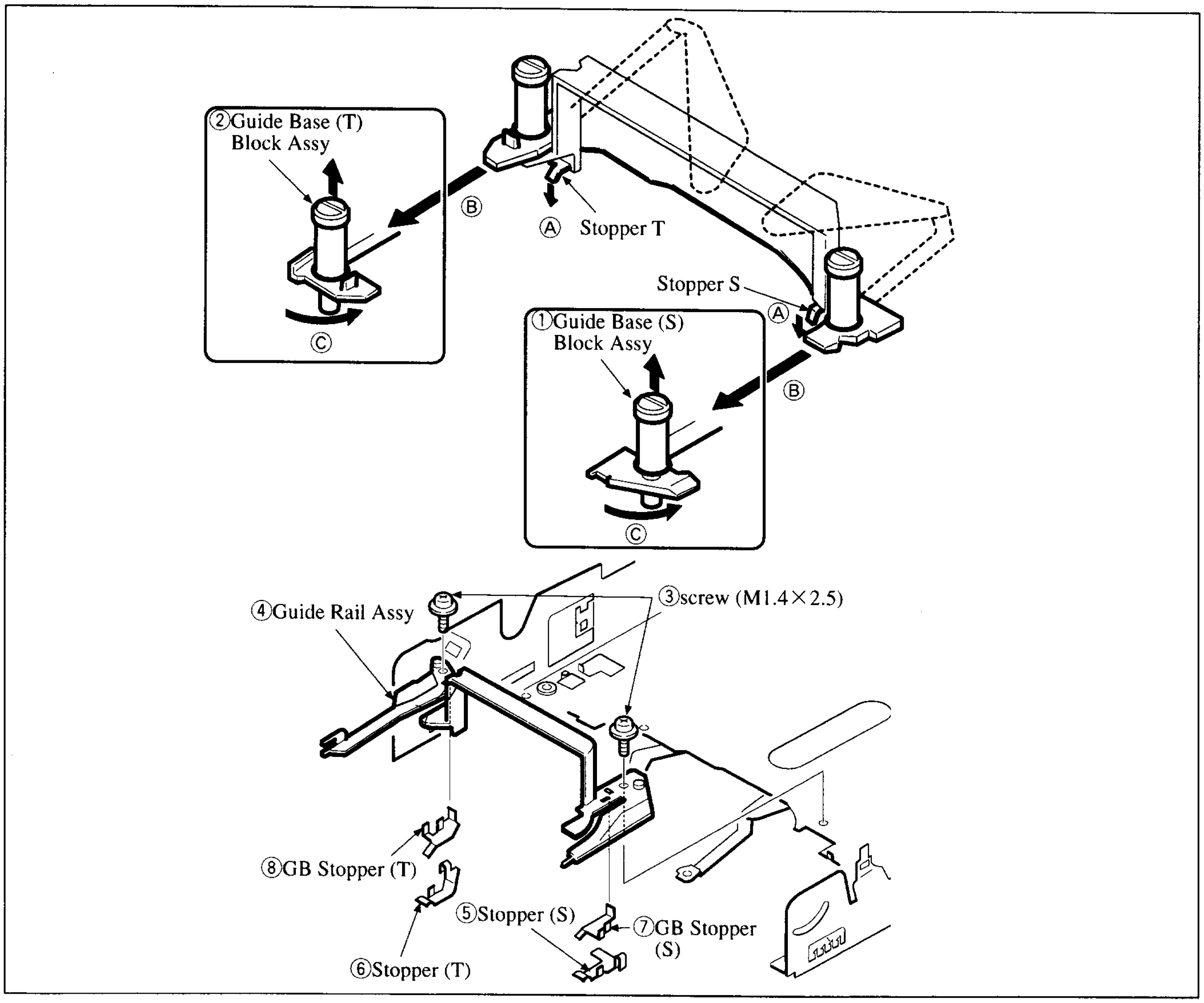

②Guide Base (T)
Block Assy
Ⓑ
Ⓒ
Ⓐ Stopper T
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**

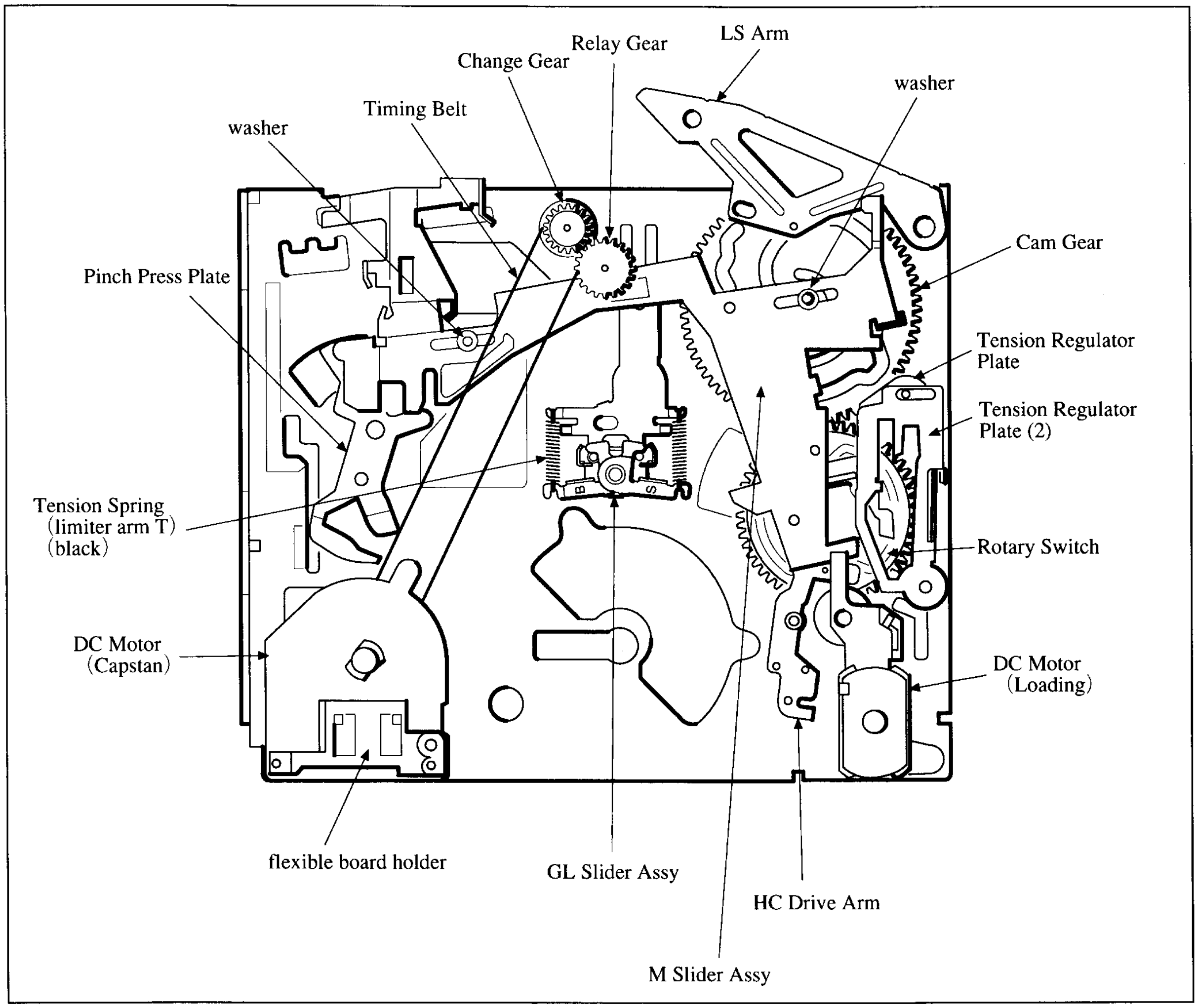

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

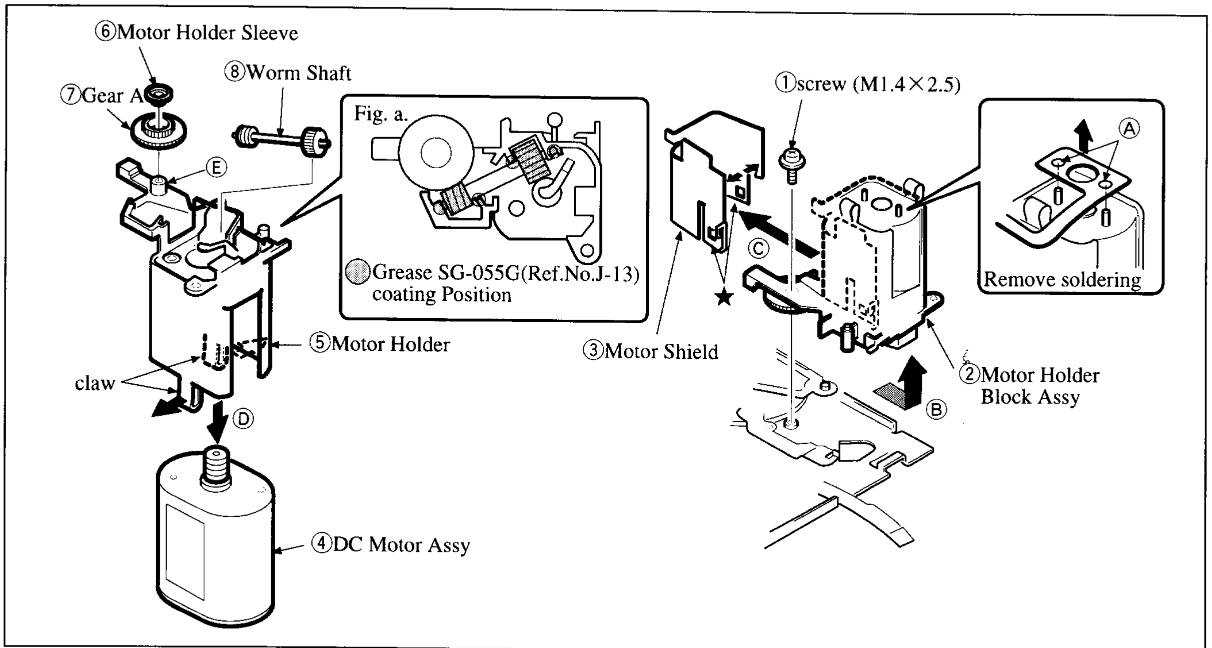

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
●Grease SG-055G(Ref.No.J-13) coating Position
①screw (M1.4×2.5)
Ⓐ
Remove soldering
Ⓒ
★
⑤Motor Holder
③Motor Shield
claw
Ⓓ
②Motor Holder Block Assy
Ⓑ
④DC Motor Assy

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk ＊Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

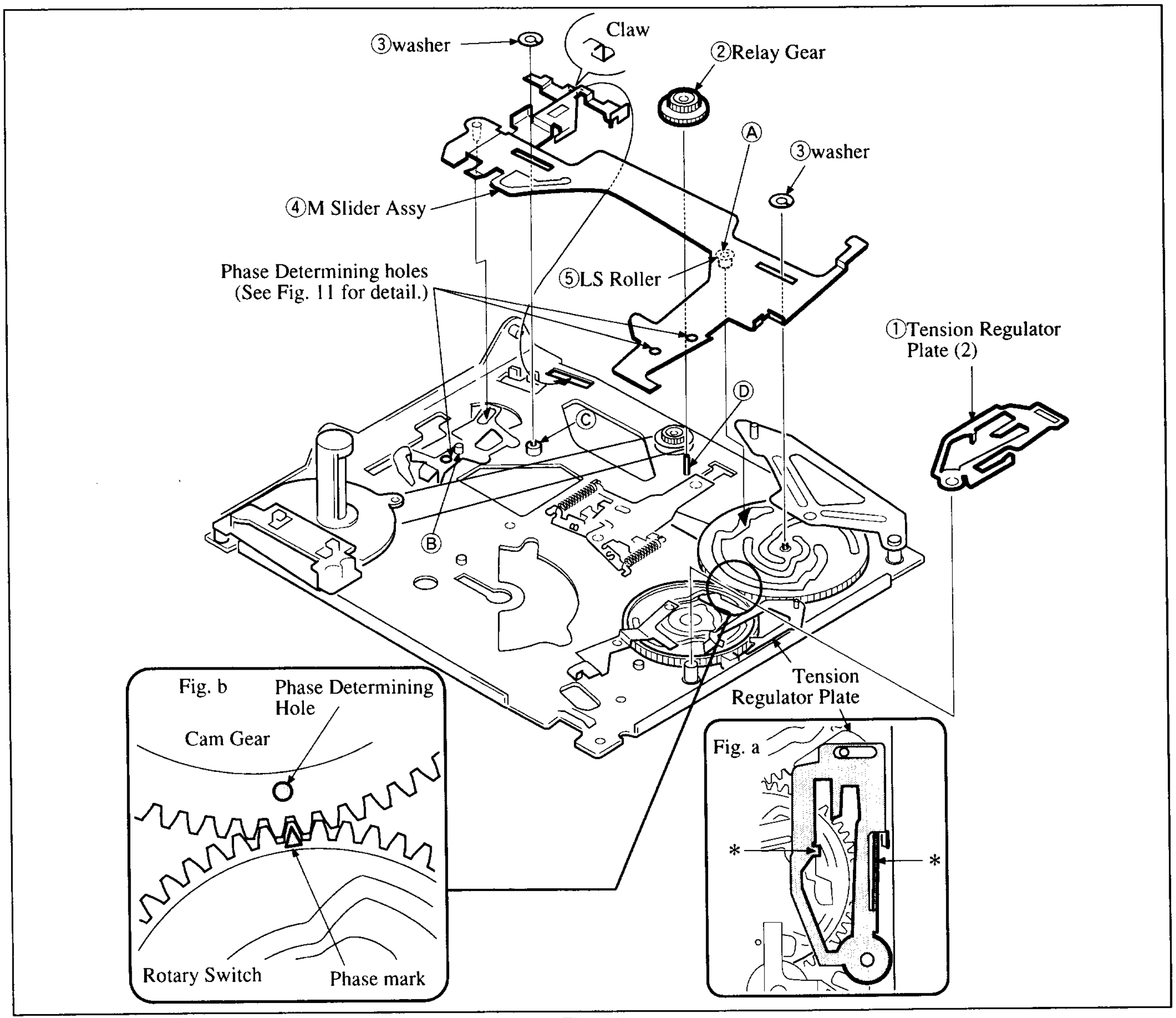

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension Regulator Plate
Fig. b
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
＊
＊

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

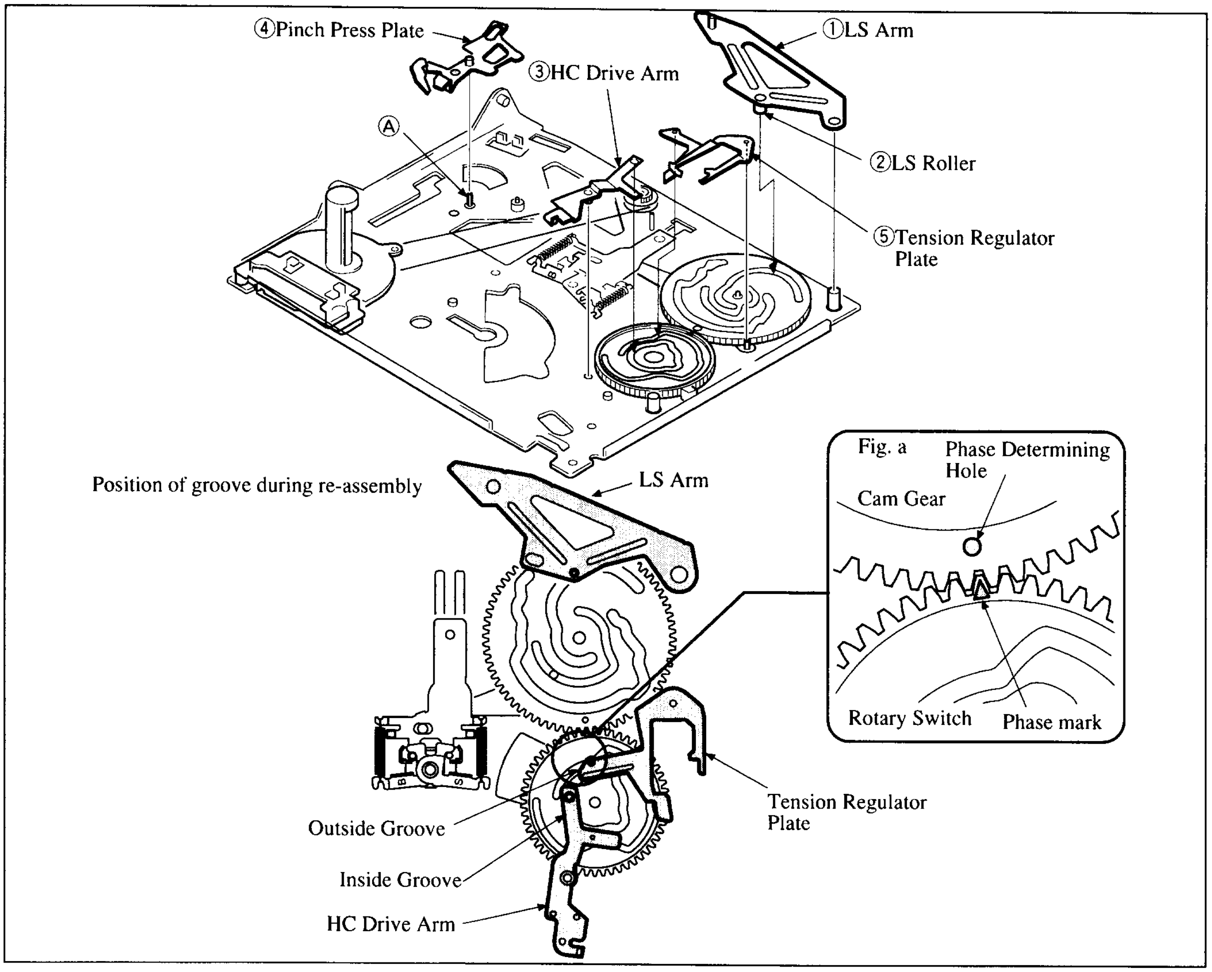

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

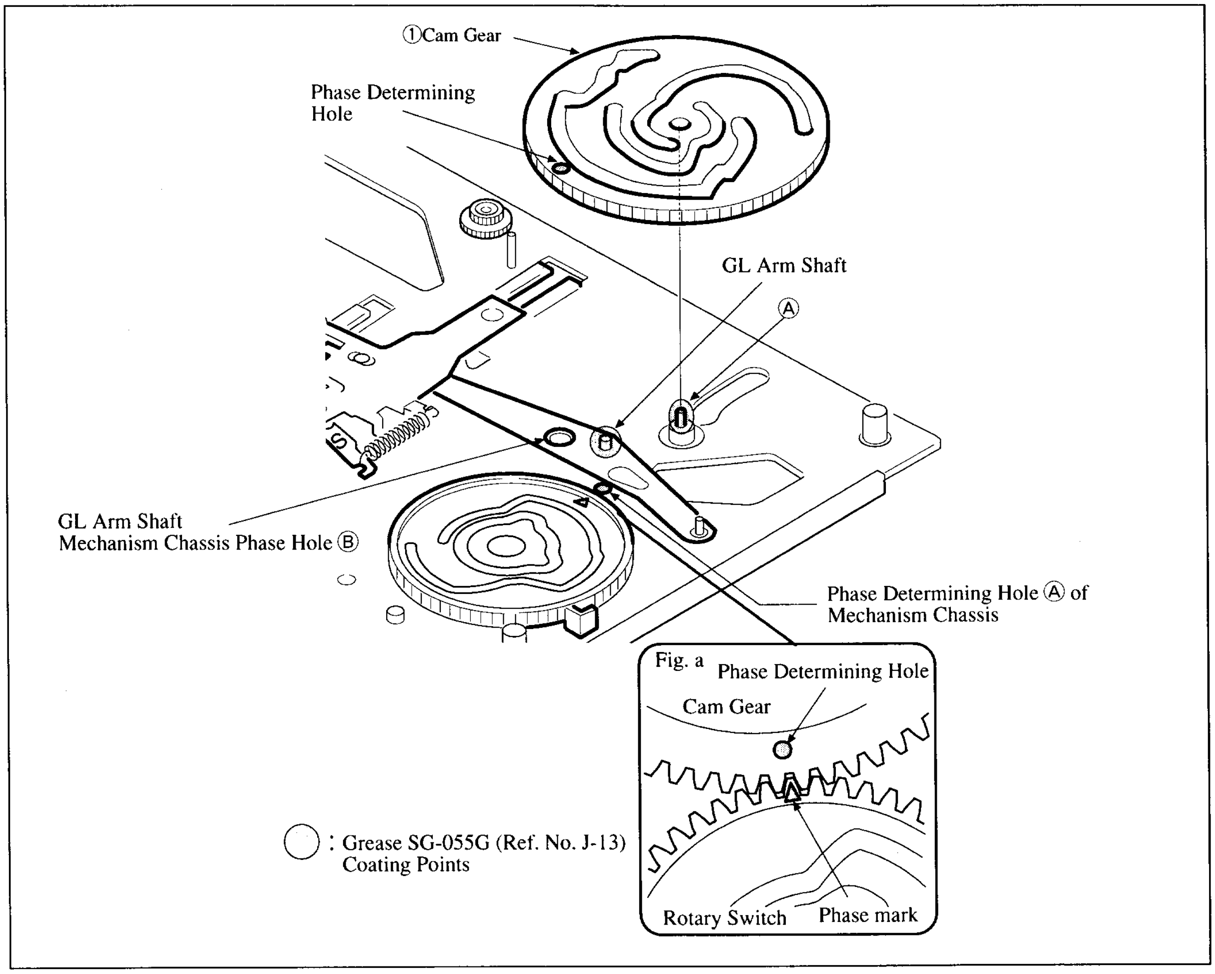

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

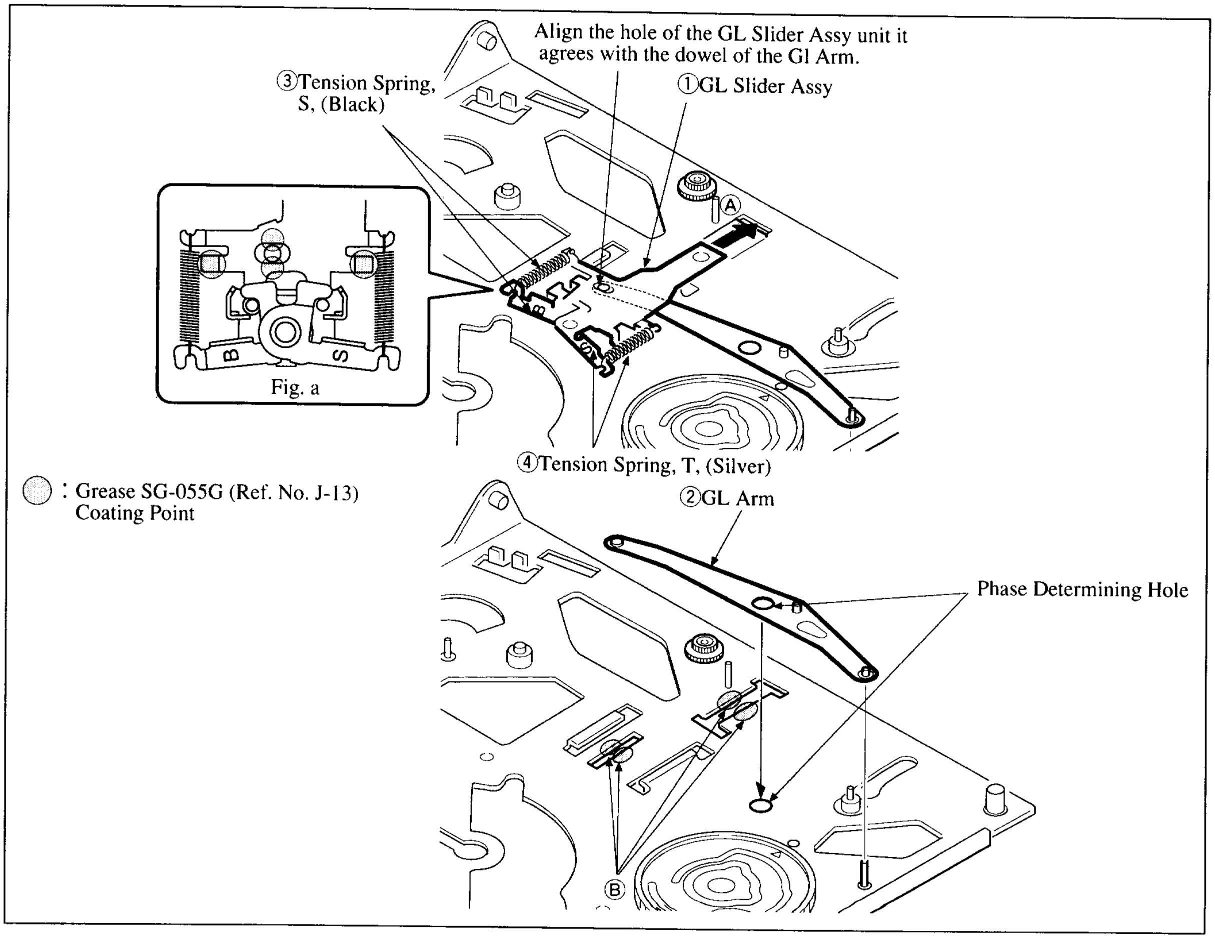

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
②GL Arm
Phase Determining Hole
Ⓑ
● : Grease SG-055G (Ref. No. J-13) Coating Point

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

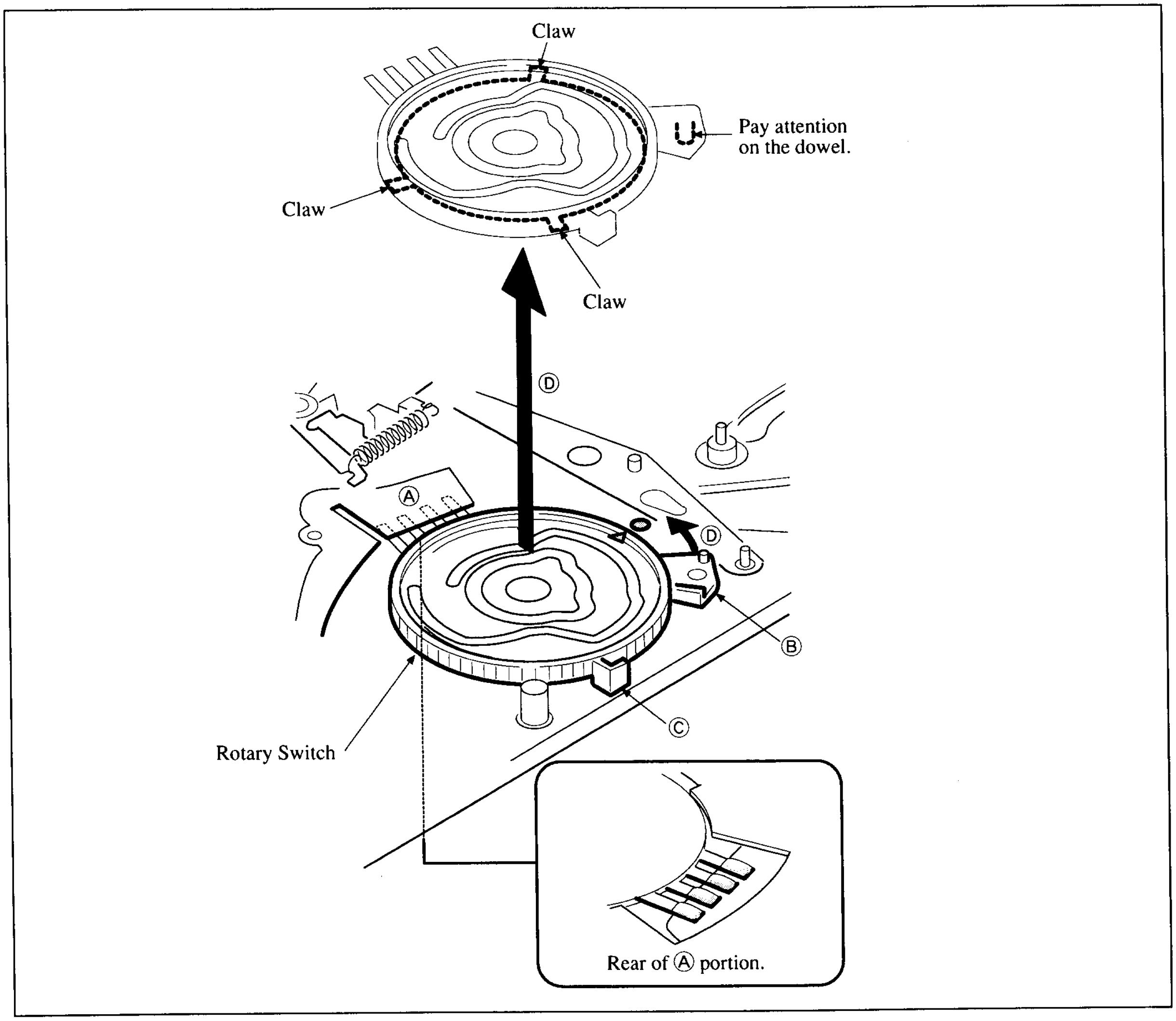


Fig. 22

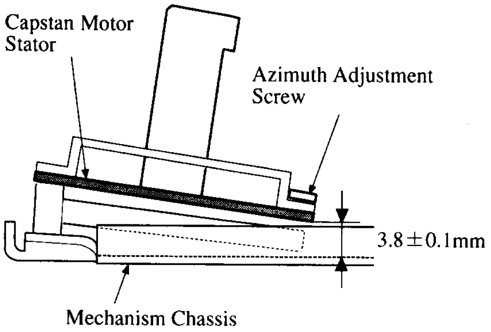
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

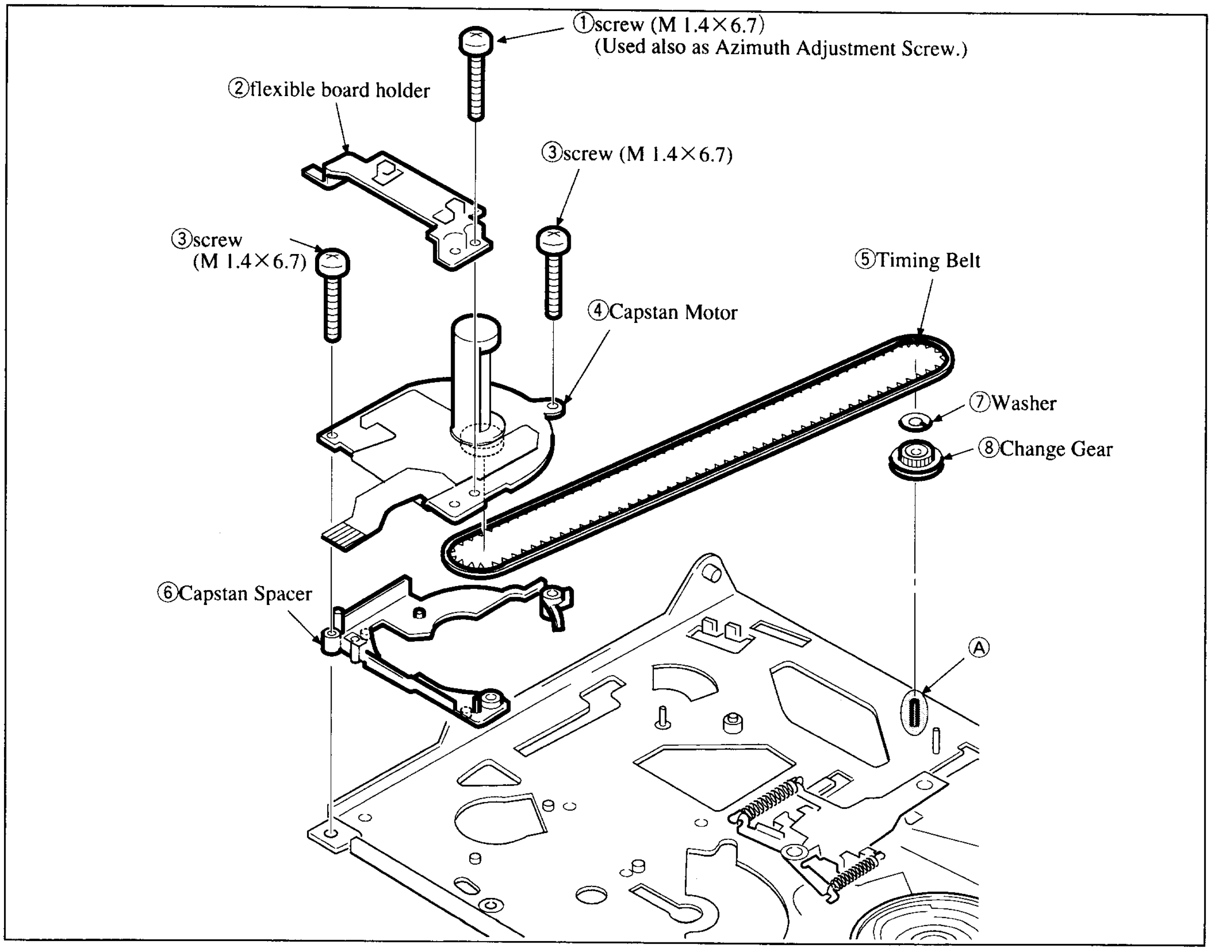

①screw (M 1.4×6.7) (Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw (M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

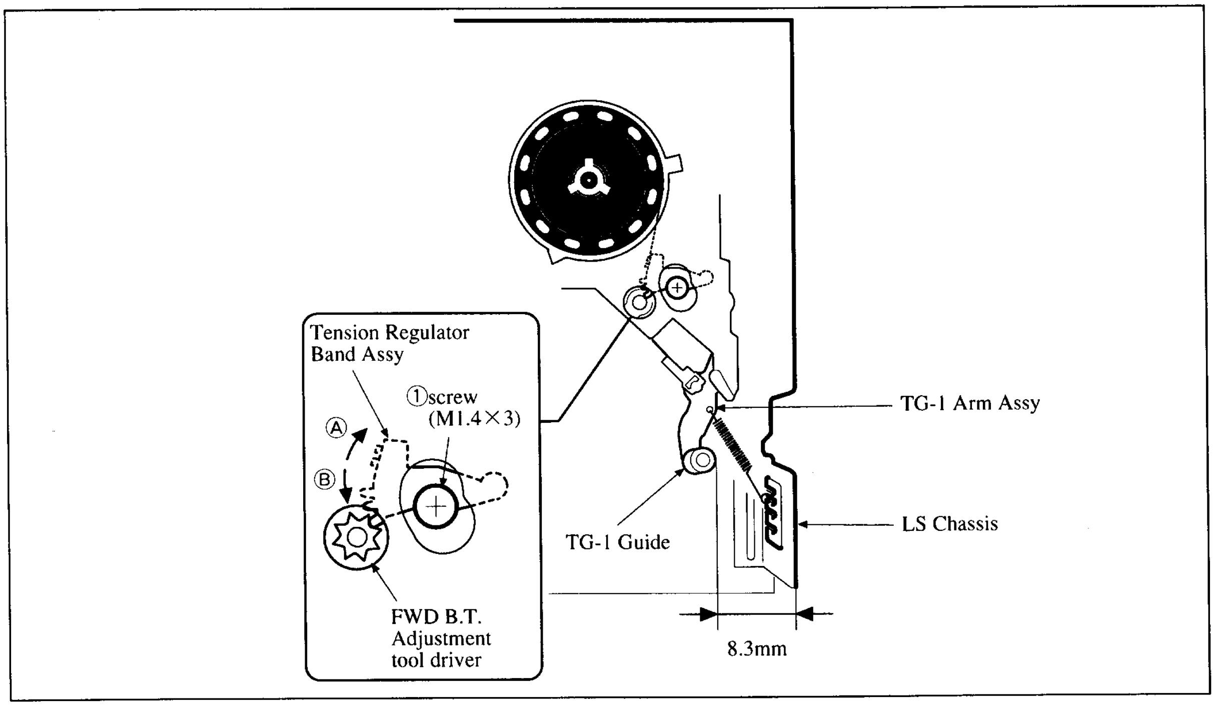

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Arm Assy
LS Chassis
TG-1 Guide
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

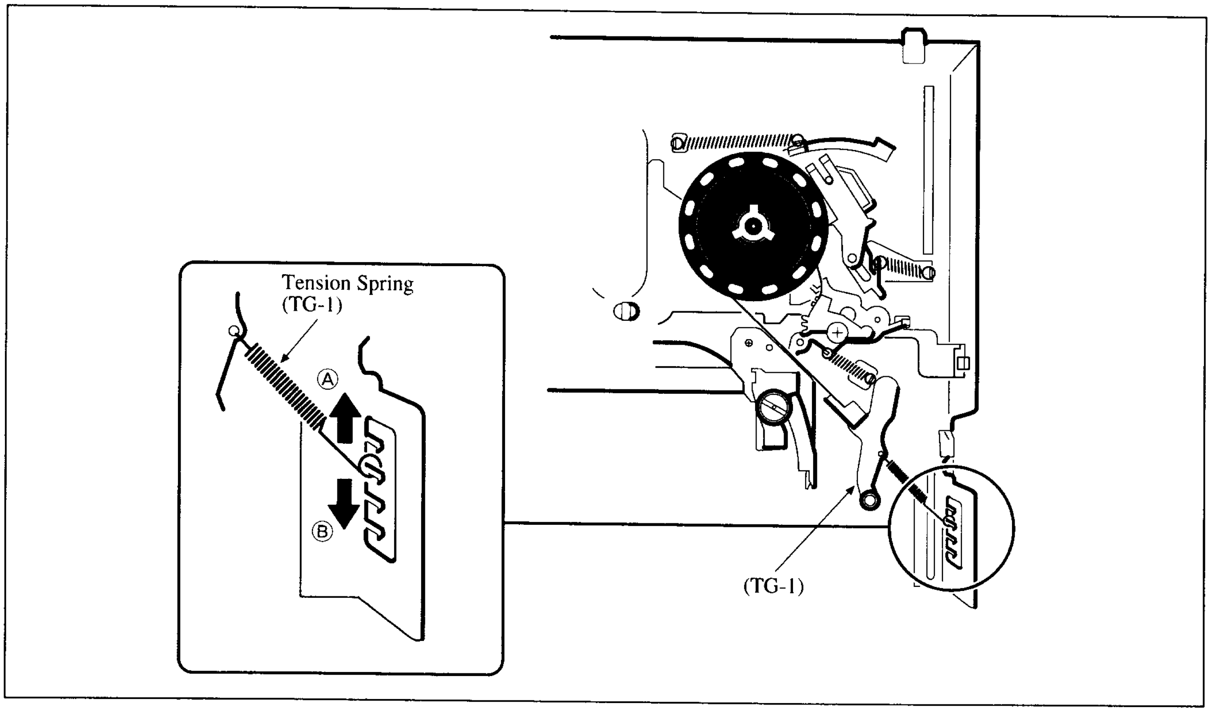


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose:	Adjusts the head linearity.
Adjustment Error:	Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

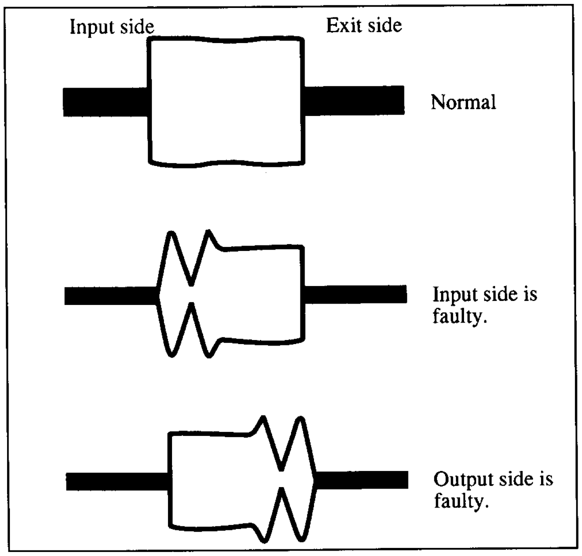


Fig. 26

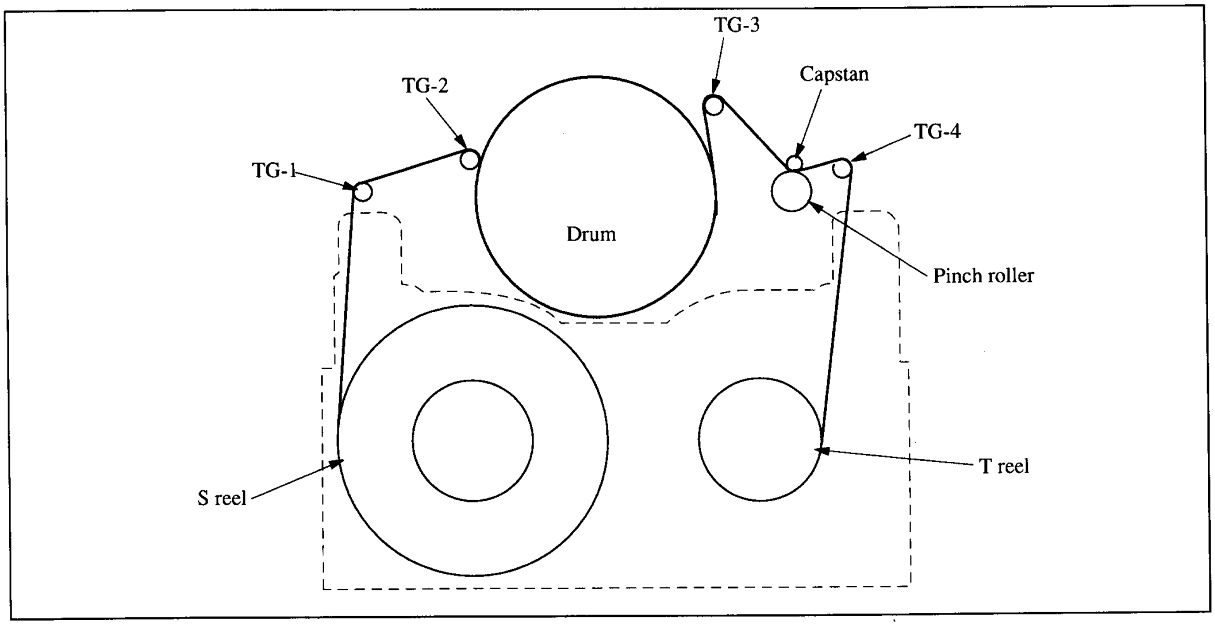


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

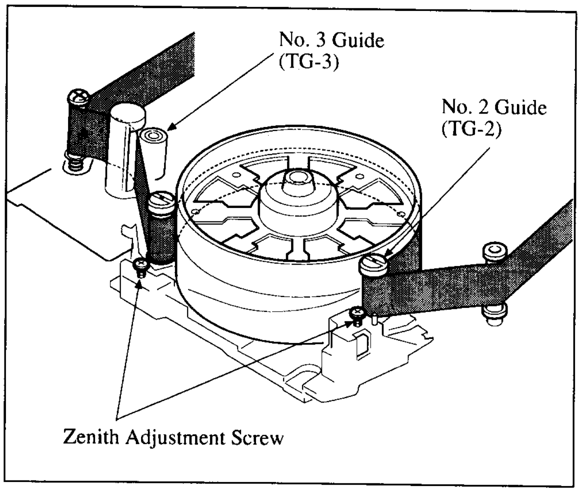


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

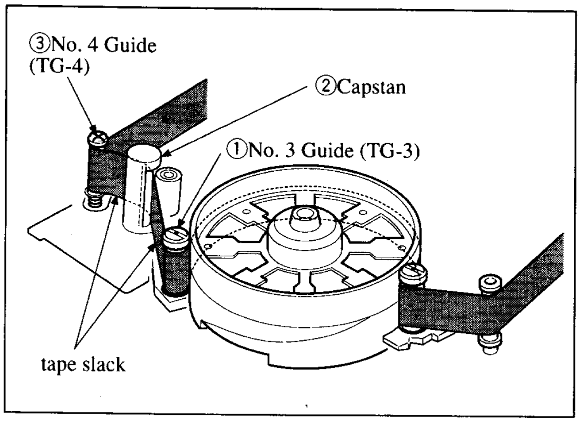


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

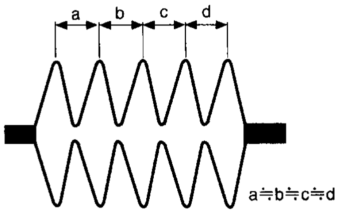


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

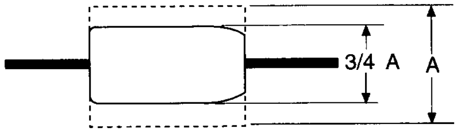


Fig. 31

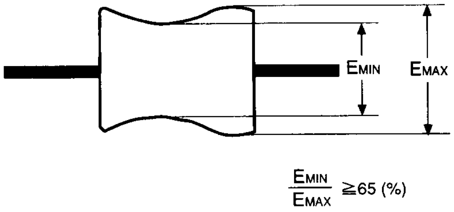


Fig. 32

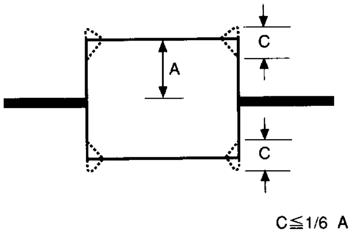


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

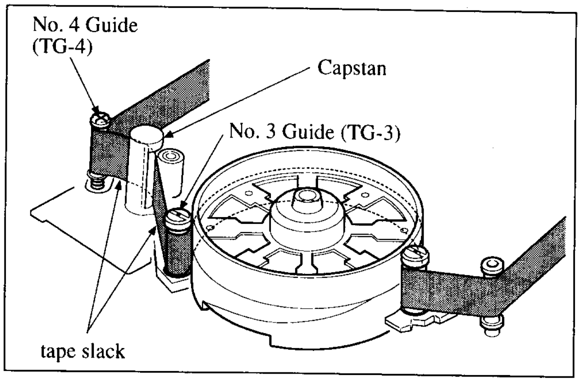


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

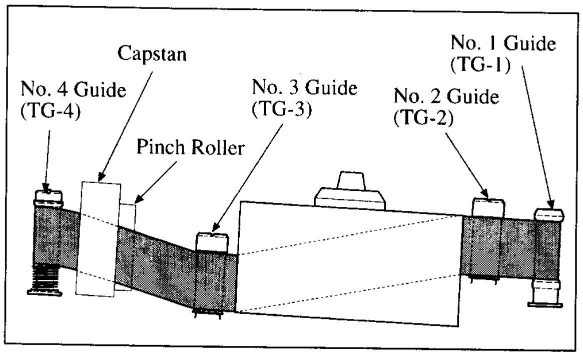
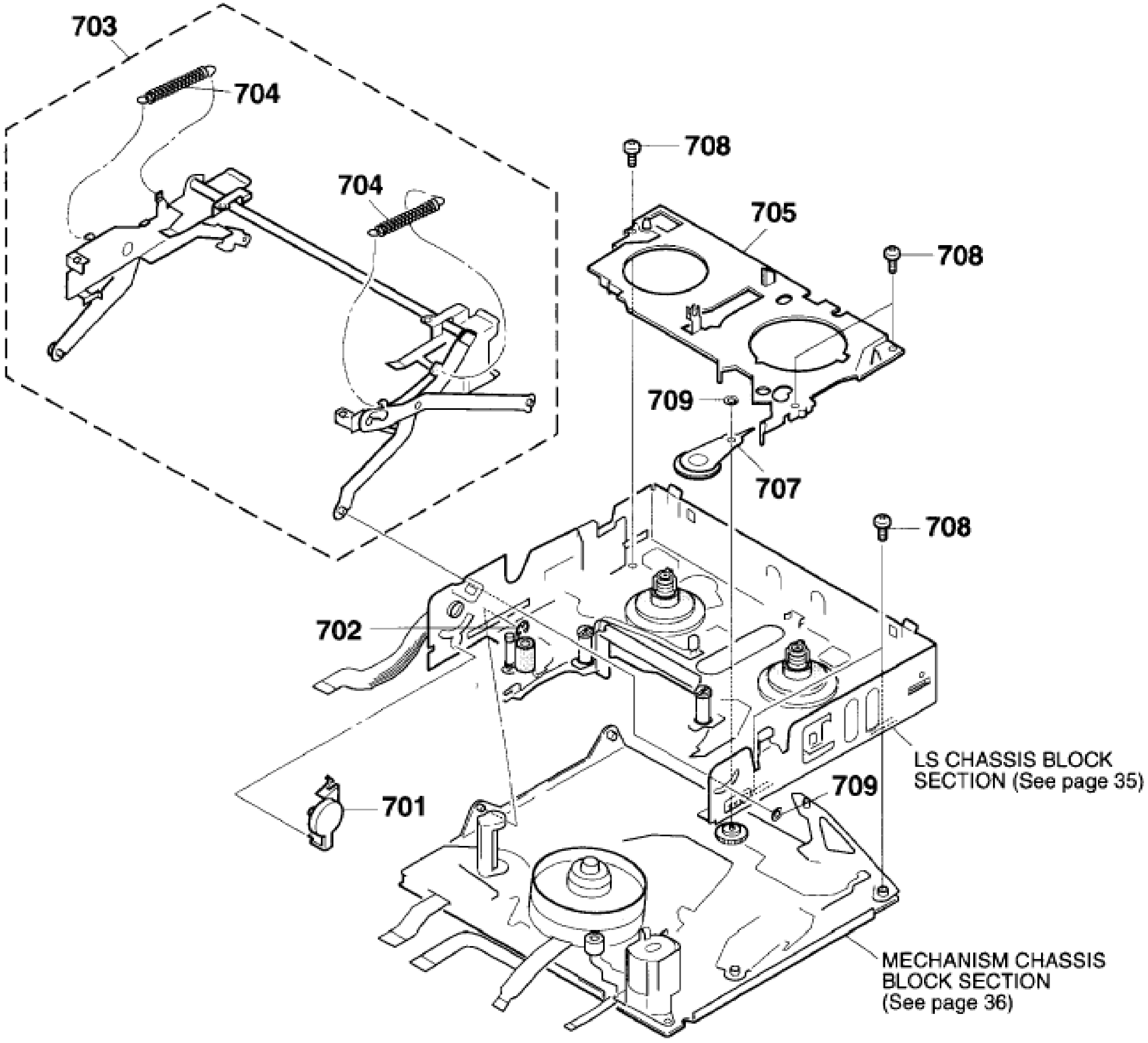


Fig. 35

5-1. Cassette Compartment Block Section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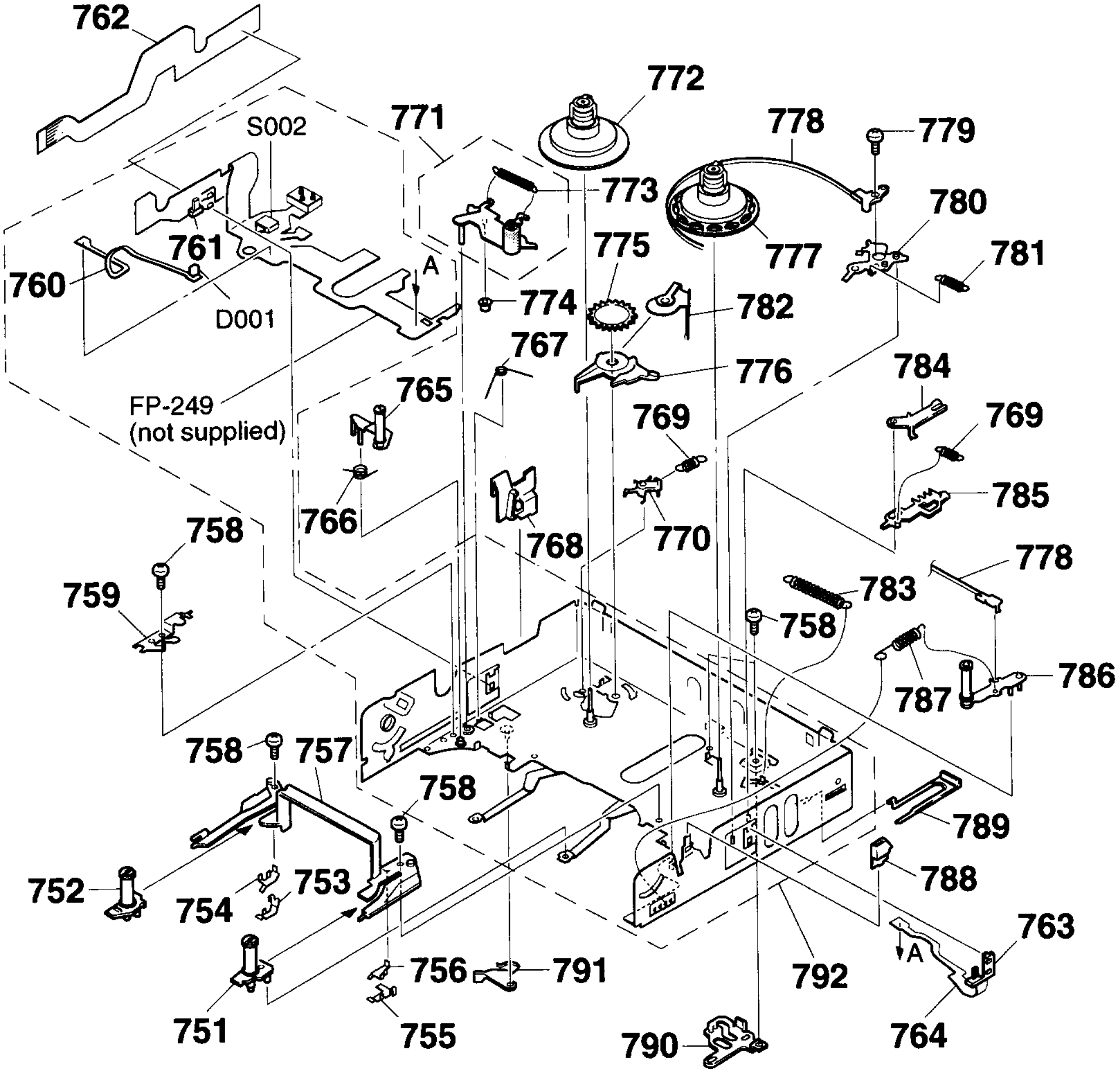
LS CHASSIS BLOCK SECTION (See page 35)
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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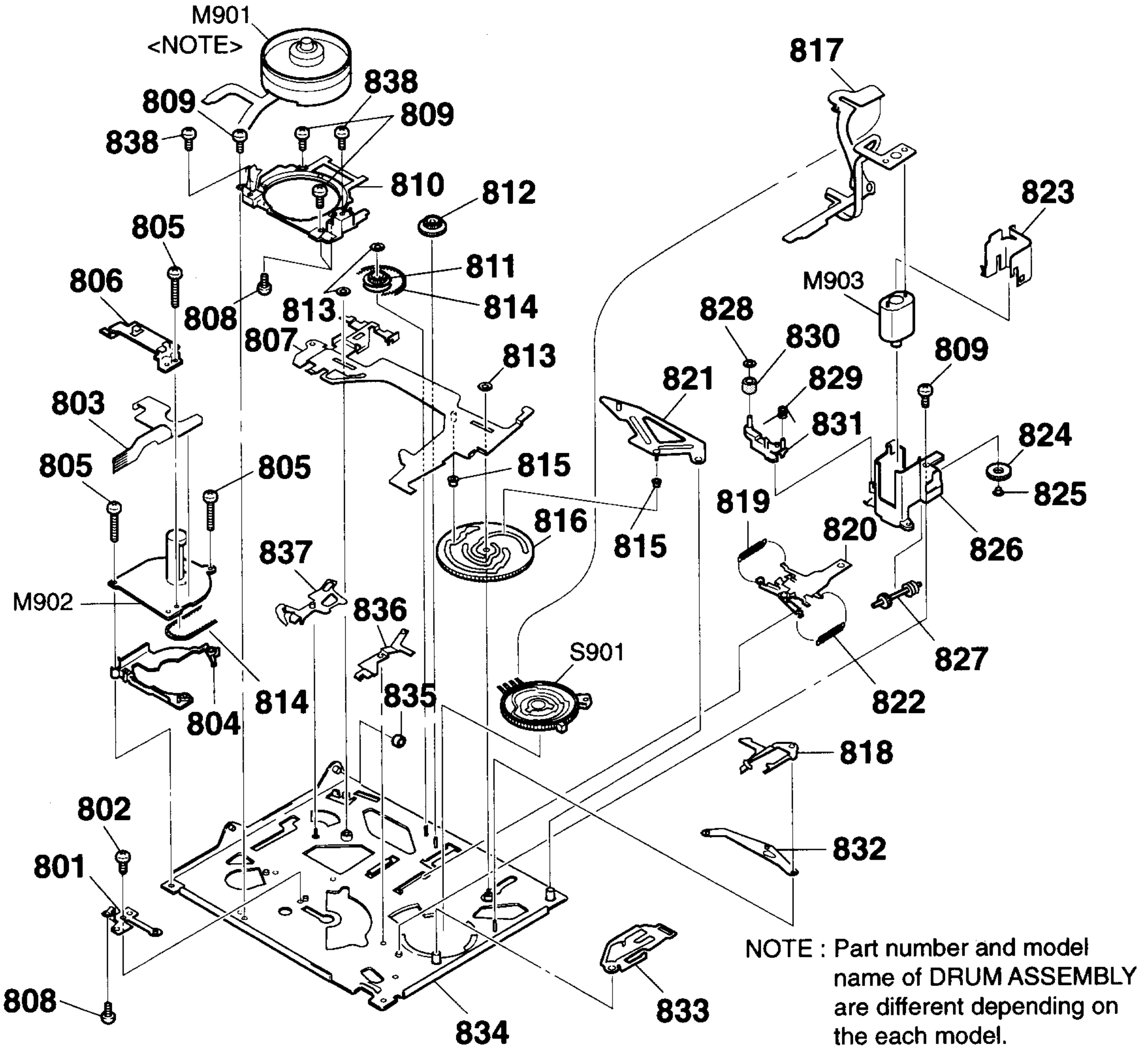
5-3. Mechanism Chassis Block Section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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.